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LAKE CARRIERS' ASSOCIATION.

To consider and take action upon all general questions relating to the navigation and carrying business of the Great Lakes, maintain necessary shipping offices and in general to protect the common interests of Lake Carriers, and improve the character of the service rendered to the public.

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THE DEEP WATERWAY FROM LAKES TO COAST.

The report of the deep waterway commission on a deep waterway from the Great Lakes to the Atlantic has just been completed. The commission consists of Lieut. Col. C. W. Raymond, of Philadelphia; Alfred Noble, of Chicago, and George Y. Wisner, of Detroit. The essential points and conclusions in the report follow:

The report is made up of three parts.

First. The report of the board containing a description of the original condition of the lake waterways and connecting channels, outline of the operations and investigations of the board, the physical conditions along the routes investigated, conclusions as to the relative merits of the routes and the estimated cost of 21-foot and 30-foot waterways.

Second. The appendix containing 23 reports of surveys and investigations, which form the basis of the conclusions and estimates given in the report of the board. The papers of the appendix fill nearly 2,000 pages of manuscript, and are as follows:

1, paper on locks; 2, lock gates; 3, breakwaters; 4, speed of ships; 5, comparison of waterways and relative advantages of routes; 6, Lake Erie regulations; 7, Niagara river discharge; 8, regulation of Lake Champlain; 9, instructions; 10, Niagara and Champlain routes; 11, St. Lawrence route; 12, Champlain route, northern division; 13, Oswego-Mohawk route, western division; 14, Oswego-Mohawk route, eastern division; 15, tidal Hudson; 16, water supply; 17, lake channels; 18, materials to be excavated; 19, diamond drill borings; 20, precise levels, St. Lawrence river; 21, precise levels, St. Clair river; 22, description of bench marks; 23, secretary's report.

Third. One hundred and forty-one maps and drawings showing plans and profiles of the routes and design of structures on which estimates have been based.

The report of the board, after stating the act of Congress under which the work was done, gives a brief history of the lake and river waterways and the improvements undertaken in the past.

The operations of the board are then briefly stated and an outline given of the investigations which have been made by its members and assistants, the details of which are given in the appendix.

The report on the control of lake levels, which was made the subject of a special report to the Secretary of War, last December, is embodied in the report without any modification of recommendations.

The different routes from the lakes to the seaboard, and the channels through the lake waterways, are then discussed, estimates of cost given, and conclusions drawn as to the relative values of the different lines investigated.

In regard to the routes from Lake Erie to Lake Ontario, the following comparison is made:

"Referring to the estimate for the Tonawanda-Olcott route, it will be noted that it exceeds the estimated cost of the Lasalle-Lewison route by $6,060,550, for a 21-foot channel, and $2,136,900 for a 30-foot channel.

"Following the method developed in Appendix No. 4, on speed of ships in the proposed deep waterway, it is found that a steamship of 19 feet draft in the 21-foot channel would consume one hour and nine minutes more time between Buffalo and a point common to the two routes in Lake Ontario in traversing the Tonawanda-Olcott waterway than by the Lasalle-Lewiston route, and that in a 30-foot channel a steamship of 27 feet draft would be one hour and forty-three minntes longer by the Tonawanda route.

"Since the cost of maintenance of the Lewiston waterway would be less than for the route from Tonawanda to Olcott, the interest and expense account will be much less for the former, and, as the actual time saved by a steamship on the Lewiston route would be from 11 to 16 per cent. of the time of passage, it is evident that both economy in construction and cost of transportation definitely determine the Lewiston waterway as the preferable route.

"In the discussion of deep waterway routes to the sea in this report, whatever route out of Lake Ontario, which may be considered, all estimates of cost of construction, transportation and times of passage for ships of different speeds and dimensions will be based on the use of the Lasalle-Lewiston route."

The importance of establishing the final depth which should be given the lake channels is strongly recommended, and facts given in both the report and appendix which strongly indicate that for any depth over 21 feet the cost to maintain the channels, with interest on cost of construction, will exceed any decrease in cost of transporting the lake commerce due to greater draft of ships in which carried. In this same connection, the loss to ship owners from vessels becoming obsolete before worn out, where the depth of channels is being continually increased is one of the serious obstacles to obtaining low rates of transportation.

The report continues:

"The investigation of the routes for a waterway between Lake Erie and Lake Ontario indicates that the Lasalle-Lewiston line can be constructed at less cost than the others and can be traversed by a type of carrier between points common to all the routes in less time than by the other routes.

"The natural harbor at the mouth of the Niagara river and the comparatively small amount of restricted channel on the Lewiston line, make it a better location on which to construct a waterway than the route from Tonawanda to Olcott.

"The route from Lake Ontario to New York is 208 miles farther by the St. Lawrence river, Lake Champlain and the Hudson river than by the Oswego, Mohawk and Hudson rivers, but has 292 feet less lockage than the Mohawk low level, and 366 feet less lockage than the Mohawk high level route.

"The length of standard canal prism is practically the same by each route, the difference being almost entirely in the open lake and river portions of the waterways.

"The sailing time for a type carrier is 12 hours longer for the Champlain route than for the Mohawk route, which difference is due to the greater time required to sail 208 miles farther by the former than to make 18 more lockages on the latter.

"The comparative values of the two routes depend largely upon the cost to construct and maintain the respective channels, the annual traffic capacity of each, and the time required for type carriers to make round trips, the details of which are given in the annexed tables.

"The estimated cost of the 21-foot waterway and the sailing times between terminals are based on locks 600 feet long and 60 feet wide. If the locks should be made 80 feet wide for the purpose of passing large ships from the lake shipyards to the Atlantic, the estimated cost of the Mohawk route would be increased $4,221,000, and the Champlain route $2,560,000, the annual capacity of the routes slightly diminished, and the times required for making round trips increased."

THE ARMOR PLATE QUESTION.

A correspondent of the New York Tribune calls attention to the fact that the advocates of Government armor works have largely based the claim that such an enterprise could be successfully operated and cheaper armor obtained on the fact that the government produces heavy ordnance at the Washington Navy Yard and at Watervliet Arsenal. But all the guns produced from these works have been made from forgings supplied by private companies, whose work on them embraces all the metallurgical features of the process of manufacturing, beginning with the raw materials, and who supply them to the government rough machined and fully treated, after which they are simply machined to finish dimensions, etc. Every naval power of Europe has, at different periods since the laying down of an armor clad ship, contemplated government works, only to find that armor could not be manufactured successfully in that way, or that the cost of successful production would far exceed the price at which it could be purchased from private works. An admiralty commission of Great Britain some time ago determined the question negatively. Russia, being dependent upon foreign sources of supply, has spent more than $10,000,000 upon a government plant at Kolpino, but it is to be maintained regardless of cost, because the Russian ordnance experts concede that as a home resource it is invaluable. A large percentage of the plate manufactured there has failed to meet the ballistic standard, but the government has since adopted the most advanced armor process of the time and is remodeling the Kolpino plant at a cost of many millions.

As a result of an argument concerning the fabled hardening of copper, Mr. A. W. McCaslin, master blacksmith on the Pittsburg & Lake Erie Ry., at the McKees Rocks, Pa., shops, made trial of the case hardening process upon some pieces of copper. Four pieces were placed in a box filled with granulated raw bone and baked for fifteen hours. After being taken out, one piece was quenched in fish oil, one piece in salt water, one piece in solution of saltpetre and yellow prussiate of potash in water, and the fourth piece was allowed to cool in the air. The only piece which gave evidence of being affected was the one quenched in fish oil, and that was affected but slightly. The same pieces were then baked in yellow prussiate of potash for 15 hours and then cooled in the air, but all to no effect. There was no result expected from this experiment, which was made purely as such, but it is evident that there can be no carburization of copper from this trial.

EMILE C. GEYELIN, an eminent hydraulic engineer, died in Philadelphia June 25, seventy-five years old. Mr. Geyelin was a native of Alsace, France, and studied engineering with Jonval, the inventor of the inverted turbine. He came to the United States in 1849 for the purpose of introducing the Jonval turbine. Later he contributed important improvements to the wheel. Two of the wheels are in the Fairmount Waterworks at Philadelphia. He also designed and superintended the construction of turbines used at Niagara Falls.

AROUND THE LAKES

DULUTH—SUPERIOR.

Special Correspondence to The Marine Record.

Capt. Fred. N. LaSalle, one of the best known vessel agents on the lakes, died on Friday at his home from Bright's disease, after an illness of one year. He leaves a widow, and two children by a former wife, Jessie and Frank. The remains were taken to Chicago.

The month of June was an unusually heavy one in ore shipments and those who have been predicting that the total output of the season would more nearly approximate 16,000,000 tons than 20,000,000 are now forced to confess the probable inacuracy of their predictions. The shipments from the Duluth & Iron Range docks at Two Harbors for the month were 624,000 tons, as compared with 600,000 tons for the corresponding month in 1899. The Duluth, Missabe & Northern shipped 709,073, while in June 1899, the total amounted to but 428,563, showing an increase of 280,510 tons. The Eastern Minnesota shipped 282,946, while during June, 1899, the amount was but 112,396.

Considerable progress is being made at the Collingwood shipyards. This week the masons and bricklayers are at work on the boiler house, machine shop and engine room. The building which is of brick will be 50 x 55 feet one story high. There will be two boilers six feet in diameter and fourteen feet in length capable of supplying a pressure of 125 pounds of steam to a tandem compound Corliss engine of 175 horse-power besides a number of smaller engines used in driving the immense rolls in the main building, the steam hammers, shears, hoists, etc. Considerable more machinery which is being manufactured in Canada will be placed in the buildings immediately on its arrival which is expected will be in the course of a few weeks. The large and heavy machinery in the main building has been placed on the cement beds prepared and the machinists are now busily engaged in placing the pulleys and shafts.

The ninth annual convention of the International Longshoremen's association assembled at Duluth Tuesday for a four-days' session. One of the chief objects to be accomplished by it will be the settlement of the freight handlers' troubles at Buffalo and Erie. Another will be the disposition of the resignation of Secretary Barter, who will be asked to retain his place. No contest over the election of officials is anticipated. President Keefe will probably be re-elected. Secretary Barter reports that seventy new unions had been organized since the last convention. Twenty new unions have been formed in Ohio alone, ten in Wisconsin, nine in Michigan, eleven in New York, three in Pennsylvania and three in Illinois, with the balance in Canadian cities. The association includes in its membership all classes of longshore workers, including lumber loaders and unloaders, coal trimmers and scoopers, hoisters and engineers, lake firemen, and, in fact, all dock workers in general on the Great Lakes, rivers and seacoasts in the United States and Canada.

The Great Northern elevator now being constructed here will be the largest elevator in the world. The foundation for this mammoth structure is 128x370 feet in size, constructed of Portland cement concrete on a foundation of piles. The cost of the foundation alone was $85,000. When completed the elevator will tower 230 feet above the foundation and will be one of the most imposing iron and steel structures ever erected. The capacity of this elevator will be 6,000,000 bushels and the interior will be arranged for the storage of corn as well as small grain. The storage bins will be 13½ feet square. The square bins are a new departure in steel construction. No one has dared to use them heretofore, former bins having always been round, and, of course, of less capacity. Tests have been made of grain pressure in these square bins at the University of Minnesota by a member of the Institute of Engineers of England, and by the engineering corps of the Great Northern Railway. There will be a basement floor and a main floor, where all cleaning machinery will be located, with a capacity of three million bushels. Above the main floor are the bins about 100 feet in depth. The cupalo above the bin has six stories. Thirty steel storage tanks will be erected surrounding the main elevator, which will be 50 feet in diameter and 65 feet high. The largest elevator now in existence has a capacity for only 4,000,000 bushels, so it will be seen that this structure will be the greatest grain elevator in the world. Twenty million pounds of steel will be used in the construction of the main building. Total cost of the building will be about $2,000,000.

THE rising and falling of the water in Lake Michigan which was noticed last Saturday was repeated on Tuesday. The rise and fall extended over four feet from high to low water, and at times the water went down so quick that fish were left on the shore. Harbormaster Kennedy, of Waukegan, thinks that the tide was caused by the wind squalls.

BUFFALO.

Special Correspondence to the Marine Record.

The Richelieu & Ontario Navigation Co. has opened its 1900 season under excellent auspices and present prospects point to one of the most prosperous years in the history of this well managed traffic business.

Capt. Frank McCabe of the steamer Boston is at his home at this port, laid up with a severe attack of illness. Capt. Fisher of the Syracuse took out the Boston on her last trip. The Syracuse went to drydock for repairs.

It is said that if the Calvin company succeeds in liberating the steamer Spartan from the rocks in the Lachine canal, where the water flows at thirty miles an hour, the feat will be the finest piece of wrecking skill ever performed in those waters.

The steel steamer I. W. Nichols has been taken out of the ore trade and has been chartered for the balance of the season by the Lehigh Valley company to carry package freight between Buffalo and Duluth. The charter price was not given out for publication.

The Anchor Line has issued an ultimatum to its striking freight handlers at Erie, 600 of whom are idle. They say that when they return to work it will have to be at the Buffalo scale of wages. All the Pennsylvania freight is being shipped to Buffalo and the package freight business there is at a standstill.

The Great Lakes Towing Co,, was tied up for a short time on Wednesday. The company discharged one of its firemen and the men on the other boats went on strike. A committee of the Licensed Tugmen's Protective Association waited on Manager Lautenslager and a settlement was agreed upon. The men went back after being out about an hour.

In a lively race after a tow between the tug Peerless, of the Maytham Towing & Wrecking Co., and the tug Cascade, of the Great Lakes Towing Co., the wheel of the Peerless struck the bow of the Cascade and knocked a hole in her. The Cascade was then beached at the life-saving station. She was afterwards raised and dry docked for repairs.

Work on the main breakwater is progressing rapidly. The timber crib work is finished, comprising over a mile at the south end, including the breakwater, extending out from Stony Point. The stone breakwater will all be up to the water line and about 3,000 feet of it completely finished by the end of this season and by the middle of next summer Buffalo's new harbor, which will undoubtedly be the finest harbor in the world, will be finished.

The following comparative statement of the tonnage of the canals from the opening of the same to June 1, 1900, with the tonnage of the year 1899 for the same period, was given out by the superintendent of public works: April, one week, 1899, 65,113; 1900, 57,598. May, first week, 1899, 71-236; 1900, 60,053. May, second week, 1899, 67,813; 1900, 96-261. May, third week, 1899, 86,375; 1900, 95,502. May, fourth week, 1899, 175,904; 1900, 171,769. Total to June 1, 1899, 466,441; 1900, 481,183. This shows a gain for this June of 14,742 tons.

By next season it is thought a new steel steamer, complete in equipment and modern in all its appointments, will be added to the fleet of the Crystal Beach Co. It is recognized by the company that the demands of the Pan-American year can be but partly met by the present fleet of boats, and if present plans do not miscarry the projected craft will be ready for the opening of the excursion season next year. The new steamer will carry from 1,500 to 1,800 persons, and is designed to make the trip from Buffalo to Crystal Beach in thirty-five minutes.

As a general thing it may be said that the coal supply is livening up some. Following the Fourth of July the coal supply dwindled a little, not being as brisk as it might be, but now it is getting back to normal again. The scarcity happened at a time when it was not very embarrassing, for the owners had most of their boats up at the upper lake ports at the time and were not crying for tonnage. The movement of ore is unchanged. The only difference seems to be in the willingness of the larger tonnage to engage in the ore trade, a few such boats being constantly placed with lower lake shippers.

For the fiscal year ended June 30th the report of the customs department at the port of Buffalo shows a satisfactory increase in business. Duties on imports amounted to $818,-202.82, an advance of over $50,000 over the previous year. Receipts from all cources were $823.324.46, and to collect this amount cost 6½ per cent., or $53,591.03. Vessels entered from foreign ports numbered 1,210,and 1,138 cleared for foreign ports. Vessels entered from domestic ports numbered 4,010, and 4,137 cleared for domestic ports. There were 136 certificates of enrollment granted, and 267 licenses for coasting trade granted. The value of exports was: Domestic, $14,271,527, foreign, $195,988.

The port of Buffalo is now certainly safe for another year, at least, from any possible injury which might have been anticipated from the construction of the Conners elevators at Montreal. In the first place, the opening of the fourteen foot navigation of the St. Lawrence canals, promised so faithfully by the Dominion government for the present season, is not yet in sight. In the second place there is not a move yet in the direction of building the elevators which Mr. Conners promised would do so much for Montreal. There is also a feeling that Connors and his syndicate merely wanted to secure the option and would not build, in any case they are credited with some interior views not yet patent to the general public.

Lake shipments for the week from the Custom House reports are 65,185 tons, distributed as follows: Milwaukee, 24,600 tons; Chicago, 15,600 tons; Duluth-Superior, 6,920 tons; Lake Linden, 3,900 tons; Fort William, 2,600 tons; Racine, 2,500 tons; Manitowoc, 2,400 tons; Green Bay, 2,275 tons; Hancock, 1,200 tons; Waukegan, 1,000 tons; Toledo, 650 tons; Port Huron, 600 tons; Depere, 350 tons; Marine City, 350 tons. Freights ranged to: Milwaukee, 60 cents; Chicago, 65 cents; Duluth, 40 cents; Lake Linden, 50 cents; Fort William, 50 cents; Racine, 65 cents; Manitowoc, 60 cents; Green Bay, 60 cents; Hancock, 50 cents; Waukegan, 65 cents; Toledo, 40 cents; Port Huron, 40 cents; Depere, 60 cents; Marine City, 40 cents; Port Burwell, as agreed.

Somebody made a slight blunder when it was published that the lake coal shipments were about 200,000 tons less to the end of June than they were at the same date last season. The fact is that the amount this season was 731,401 tons, and 676,933 tons last season, 519,136 tons in 1898, 430,-023 tons in 1897 and 644,283 tons in 1896. It is a fact that the shipments are now falling off and as it is given out that July is certain to be a light month in the business the total will probably fall short of last season by the opening of August. One of the big anthracite shipping companies, name not given, but supposed to be the Lackawanna, during June shipped 30,000 tons of anthracite from the mines to Chicago direct, transferred the same amount from the Buffalo trestle to cars for the same point and shipped only 30,000 tons by lake to all points.

CHICAGO.

Special Correspondence to The Marine Record.

Higgie & Chamberlain chartered the schooner Lotus for oats to Port Huron at 1¼ cents.

Grain freights are active this week at 2 cents on corn to Lake Erie ports, and 1½ cents to Port Huron.

The steam yacht Maud S. is in the Great Lakes Towing Co.'s floating dry dock for a general overhauling.

The steamer Cleveland, light, when coming down the river from Stetson's slip Saturday evening, sprung a bad leak and was towed to Miller Brothers' dry dock for repairs.

Extreme regret is felt here at the deplorable accident to the schooner yacht Idler on Saturday last, and the sad loss of life to the members of Captains James and John Corrigan's families.

The Graham & Morton Transportation Co.'s steamer Mary was in Miller Brother's dry dock and her fin keels taken off, as they were found to be a detriment to the speed of the steamer. The Mary is also to receive a new wheel with more lead.

R. G. Peters of Manistee, owner of the steamer Charles Reitz and three consorts, claims $825 for detention of 5½ days in receiving cargoes of ties for his fleet from the Evansville Grain Company. He has libeled the cargoes and commenced sult to recover.

The passenger steamer May Graham arrived here on Tuesday morning from St. Joseph, Mich. She has been placed in the excursion business and will run from Graham & Morton's dock, foot of Wabash avenue, to Lincoln park during the day, and take out moonlight excursions at night.

Grain shipments from South Chicago about reached the high water mark on Wednesday, when 877,100 bushels, mostly corn, was loaded into vessels to be taken to lower lake ports. But seven boats were required to furnish this capacity, two of which, the Siemens and Fairbairn, took over 200,000 bushels apiece, while the little schooner A. S. Wood had room for but 22,000 bushels.

The Rockefeller boats have become an important factor in the Chicago grain trade, taking 1,000,000 bushels away per week. This week the amount may run ahead of that figure. Their loads run from 200,000 to 210,000 bushels apiece. Were it not for the way the big ships are handled there would be a bad break in rates, but Rockefeller tactics are to name their price and wait until they get it. If it is not one day it may be the next, and it does not apparently matter much how long they wait, but the figure they must get.

The remains of the late Captain Fred. N. LaSalle arrived here from Duluth over the Northwestern R. R Sunday morning, and was met by a large delegation of marine men. The interment took place at Rosehill cemetery. The honorary pall-bearers were Geo. L. McCurdy, Chas. E. Peck, Wiley M. Egan, Edward Smith, John Mitchell, R. R. Rhodes, James Davidson, James W. Millen, A. B. Wolvin and Alexander McDougal. The active pall-bearers were Captains Jas. J. Rardon, Dennis Sullivan, Cyrus H. Sinclair, James R. Sinclair, Frank B. Higgie and James Channon.

The demand for grain carriers is light and ore shippers from Lake Superior ports are getting all the tonnage they can take care of. Some vesselmen do not look for any improvement in carrying charges during the summer months, as a block of ore to be moved from the head of the lakes to Ohio ports during the next sixty days was covered this week at $1, and there is more tonnage on the market for the same time at that figure. Grain carriers continue in good demand, and there are not many vessels on the market for Escanaba cargoes. The movement of lumber is still light, and most of the lumber boats that are not under contract are carrying ore.

DETROIT.

Special Correspondence to the Marine Record.

Judge Swan has made an order allowing an appeal in the case of the Wilson Transit Co. vs. the steamer George Presley and consorts.

The little steamer Ida, of Mt. Clemens, was wrecked off Kelley's Island, in Lake Erie, during Sunday's blow. The crew was taken off in safety.

Thomas Appleton, of Houghton, has been appointed superintendent of construction in the life-saving service at a salary of $1,500 per annum.

The tugs Brockway and Boynton, with the steamer City of Glasgow, released the steamer George W. Roby, aground near Fort Gratiot. The Roby was uninjured.

The wrecked steamer E. F. Gould, recently purchased at Oscoda by Charles D. Thompson, was towed here on Friday. She will be entirely rebuilt for the lumber trade.

The light-house tender Dahlia has moved the Simmons reef lightship to Lansing shoal. The lightship will be stationed in this position from this time on, according to the new rules.

At the Jenks shipyard, Port Huron, a number of riveters' helpers went on a strike this week for an increase of pay from $1.50 to $1.75 per day. Their places were immediately filled from the Federal Labor Union at the old price, the union's scale.

Construction work is being put in night and day on the "Soo's" big water power canal and good progress is being made on the enterprise. A force of men aggregating about 1,300 is now being employed in the various departments of the work by the contractors.

The Chippewa, the new boat on the Arnold line, which is to run between Cheboygan, Mackinac Island and Sault Ste. Marie, is now on her route. On the way from Detroit she averaged 18 miles per hour, and it is claimed she is the fastest boat on the lakes. She was built by the Craig Ship Building Co., Toledo.

The Gearing Bros. Co., Ltd., of Detroit, have been awarded the contract of building a light-house and buoy depot for the United States government at Rain's old dock, on the old channel, at the foot of Sugar Island. The contract includes the construction of an oil house, buoy shed, dwelling, barn and dock, at an aggregate price of about $18,000.

Judge Wanty, Saturday, signed the decree in the case of Lucius P. Mason et. al. vs. the steamers Siberia and Mather. The following sums are ordered paid to Lucius P. Mason: Clark L. Ring, Michael Madden, and the estate of John T. Johnson, $2,926.59; the Marine Insurance Co., limited, $4,848 75; Reliance Marine Insurance Co., $3,232.50; Mannheim Insurance Co., $3,612.32; Commercial Mutual Insurance Co., $4,848.75.

The retirement of Frank E. Kirby as engineer of the Detroit Ship Building Co., which took place July 1, will not entirely lose the Detroit company of the valuable services of Mr. Kirby. As a salaried officer of the company Mr. Kirby's connection ceases, but an arrangement more congenial to himself has been entered into by which he will be able to look after his fast increasing duties as a consulting engineer. During the past few years the fame of Mr. Kirby as a designer of fast steamers has spread until, out of justice to himself, it was felt that he could not confine himself entirely to the work of the Detroit company. He has yielded to various demands for outside service and now has superintendence of several important vessel building projects.

Local vesselmen and captains of boats sailing out of Detroit are loud in denounciation of the blunders which lost the lives of all the female members of the family of James Corrigan, Saturday. "It is a brave thing for a crew which has saved its lives at the expense of a lot of women and children to go home and tell how it happened," said Capt. Alex. McKay. "If that boat had been managed right there would be no loss of life. The trouble was just as it is on lots of these small craft, and steam launches, inexperienced sailors, but little more than land lubbers are hired to go on and handle them. They lack judgment. There was warning of the storm, which came up Saturday, and the captain should have pulled down his canvas. He should have taken no chances. Those fellows tell about entreating the women and the child to leave the cabin and about their refusing. Why din't they drag them to a place of safety? By main force they could have carried them out. It is too horrible to think about."

A recent dispatch from Washington states that the United States Engineer's office has been considering plans for establishing an all-American channel through the lower Detroit river. The total cost would be about $10,000,000 for a completed 21-foot channel 600 feet wide. In this connection, it is recalled that when the first question arose as to how to get 12 feet of clear water at this point, the Canadian government was perfectly willing to allow the United States authorities to secure that depth. The Canadian channel was the most easily deepened and a considerable amount of money was expended. When the next additional depth was wanted it was deemed best to continue in the Canadian water, and the next investment, and the next were made continuously up to the present day, the Canadians resting peacefully and enjoying the benefits of American engineering. The channel, while not looked upon as neutral from the standpoint of national admiralty laws, has been recognized as clearly common property for government work until several millions have now been expended in the present channel. Marine men look upon the talk of an entirely new channel as idle, there being no need of abandoning what has already been secured at American expense.

Following is a part of the special orders issued Saturday by the adjutant general's office at Lansing, relative to the annual cruise of the Naval Reserve: The U. S. S. Michigan having been placed at the disposal of the state of Michigan by the Navy Department, from July 9 to 16, for the instruction of the Michigan State Naval brigade, the practice cruise of the first battalion of the Michigan State Naval brigade is hereby ordered. The commanding officer of the brigade will assemble his battalion on board the Yantic at Detroit, on the morning of July 9, at 8 o'clock. He will report with his command to the commanding officer of the Michigan for such duties as may be necessary to carry out the form of instructions designated by the Navy Department for the naval military practice cruise. He will continue his command under instruction until July 16, not later than 6 o'clock p. m. As the allotment of the annual appropriation for arming and equipping the naval militia by the United States will be based upon the number of properly uniformed petty officers and enlisted men who perform this tour of duty, it is to be understood by all the officers and men of the command that an individual sacrifice is to be made, if necessary, for the good of the organization and through it the state.

CLEVELAND.

Special Correspondence to The Marine Record.

Mr. Frank E. Kirby, of Detroit, visited here this week.

The big steamer Princeton, building at Lorain for the Pittsburg Steamship Co., will be ready for launching in about two weeks.

The schooner Planet, which came in on Wednesday night, will be docked as soon as she is unloaded. She was in a collision on the way up.

The Hawgood Transit Co. has closed a contract with the Craig Ship Building Co., of Toledo, for a steel steamer of full Welland canal size and fitted for service on salt water. She will be completed next April.

Folgar Bros., of Kingston, have purchased the steel steamer Ramona from parties at Sault Ste. Marie for traffic on the St. Lawrence. She is a screw steamer, can carry 250 passengers and can run 18 miles an hour.

Everyone regrets the death of Capt. Chauncey Richardson, one of the best known marine men on the lakes and a brother of Capt. W. C. Richardson, the vessel owner. He was for five years collector of customs at the port of Ashtabula, and was one of Ashtabula's most prominent citizens.

The fight over the rate to the head of the lakes has increased the offerings of Lake Michigan tonnage. Shippers to Milwaukee, Green Bay, Escanaba and Sheboygan are easier now than they have been at any time during the season. An effort will be made to break the rates this week and a leading shipper said that he would not pay more than 55 cents to Milwaukee, which is 10 cents betow the present rate.

A telegram to the RECORD on Thursday from Garden Island, Ont., states that the Calvin Wrecking & Salvsge Co., Ltd., Kingston, Ont., succeeded in releasing the steamer Spartan from her perilous position in the middle of the Lachine rapids. This is considered the greatest wrecking job ever accomplished on the St. Lawrence river. Much of the credit is due to Capt. A. Malone, manager of the Calvin Wrecking & Salvage Co., well known at all lake ports.

The Cleveland & Toledo line, operating the boats to Put-in-bay, has contracted with quite a number of parties for excursions to the bay in the near future. The calendar shows the following for the next week: July 11, Scovill Avenue Methodist Episcopal Church; July 12, the Meistersingers; July 13, the Cleveland Liederkranz; July 17, the City Railway Employes' Band; July 18, the Akron Hardware, Stove & Lumber Dealers' Association and Grace Episcopal Church. To Sandusky the same company will carry the Cleveland Hardware Co., on July 14.

The employes of the office of the Engineer of Rivers and Harbors have been busy at work on statistical matter looking to the issuance of the annual report of Colonel Jared A. Smith. All of the improvement work is done under the War Department and the fiscal year for that organization ended on June 30. No figures will be given out until the report has been submitted to the officials at Washington, but it is said that the report will show that more work has been done this year than any year in better than a decade. Conditions were right both last fall and this spring for an immense amount of engineering work in all of the harbors in this district.

It is now thought that the Maythams will soon have a line of wild tugs in this port. All indications of late have been to that effect. The report which has been current is to the effect that three boats will soon be placed here, and this is generally believed along the river. This is not worrying the Great Lakes Towing Co. much. They have practically run the independent line here out of business, making it necessary for them to curtail their power to one boat, and the trust officers have faith that they can serve the Maytham line a similar turn. This is contrary, of course, to the opinion of the Maytham people, for they are making all preparations for a long fight.

It is reported from Ashtabula that a suit will be begun in the Circuit Court of Cuyahoga county to compel the Lake Shore Railway Co. to swing its bridge at the head of navigation at that port for all boats wishing to pass through. The case will be brought by Russell Humphrey, and his attorney is Hon. T. E. Burton. The suit to compel the Lake Shore Co. to build a swing bridge at that point was begun in the Circuit Court of Cuyahoga county several years ago, and finally decided in favor of Mr. Humphrey in the United States Supreme Court. Recently the Lake Shore refused to swing the bridge for Mr. Humphrey's boat and this is considered in contravention of the law.

A report of the amount of business done out of this port during the month of June, by the Northern Steamship Company, operating the steamers North West and North Land to Duluth, was made this week to the general offices at Buffalo, by D. Jay Collver, the Cleveland agent. It shows that, although they had one less sailing this year than they had last during the month of June, the business increased 200 per cent. This is extraordinary and can hardly be said to be an indication of the amount of business being done by the company; the Cleveland office, it is conceded, stands far ahead of all of the other offices. Still, the company is doing a bigger business this year than ever in its history.

Although vessels show no sign of weakening in 50 cents on coal to the head of Lake Superior the shippers are easier now than they have been at any time since the fight started, and they claim that more than enough business has been done at 40 cents to establish the rate at that figure. The owners have made a hard fight to hold the rate up. They have not only turned down business, but have furnished outside vessels with their contract coal in order to keep them off the market. Shippers started to pound the rates to Lake Michigan ports especially on Wednesday, and were only offering 40 cents to Gladstone and 55 cents to Milwaukee. They did not succeed in cutting the rates and it was reported that one boat was placed for Milwaukee at the old figure. The demand for tonnage at Buffalo is light.

Rockefeller started the season with his own large fleet, together with a large chartered fleet, to carry millions of tons of iron ore for Carnegie at the going rate. He left little wild tonnage in the market, a d prospects became bright for the maintenance of high rates in all trades throughout the season. He probably could have made the contract at $1.25 a ton, for contracts at that rate had been made by many vessel owners and are being carried out by them, but he evidently was more desirous of controlling the quantity of iron ore carried this season. Although the going rate is $1 per ton, over 50 of his vessels are laid up. At first it was generally believed that his intention was to force the going rate up to $1.25, but opinion soon changed, because it was felt that he practically controlled wild tonnage and that it was not necessary to tie up his boats in order to force up the rate. There could be but one other reason for his radical act, and that is to prevent the price of iron ore from falling. He owns immense quantities of the finest ore in the Lake Superior district, and as the iron and steel trade in the United States is not far from being panicky, the smaller the quantity of ore brought down the lakes the greater the possibility of keeping up its value. There are a large number of boats carrying ore under season contract at $1.25 a ton, but they can not bring down half the quantity that was estimated two months ago as required for this year's stock.

Those in this city who were acquainted with the Corrigan family were horrified Saturday evening to hear of the disaster which befell the pleasure yacht Idler late Saturday afternoon as a result of which six lives were lost. The yacht was owned by James Corrigan and was returning from a pleasure cruise at St. Clair flats. As the vessel reached Avon Point the squall, which had been brewing since early in the day, struck her. The boat instantly keeled over. Almost the entire family of James Corrigan was wiped out, as his wife, three daughters, his granddaughter and little niece were drowned. The entire crew was saved. Negligence of Capt. Holmes, master of the yacht, is assigned as the cause of the disaster. Mrs. John Corrigan was the only passenger aboard who was saved. The yacht left Port Huron Friday with the family of Mr. Corrigan aboard, and started for Cleveland. Mr. Corrigan was ill and left by train. The yacht was in tow until she reached Bar Point. At 2 o'clock the storm came up and inside of five minutes the yacht sank. All the women excepting Mrs. John Corrigan and Miss Ettie Corrigan were in the cabin when the gale came up. Mrs. John Corrigan clung to a cork sofa when the gale came and was saved. The names of those drowned were: Mrs. James Corrigan, wife of the owner of the yacht. Mrs. Charles Reilly, aged 22 years, Miss Jane Corrigan, aged 20 years, Miss Ida May Corrigan, aged 15 years, daughters of Mr. and Mrs. James Corrigan; Miss Etta Corrigan, 13 vears, daughter of Mr. and Mrs. John Corrigan. Baby Reilly, granddaughter of Mr. and Mrs. James Corrigan.

THE president of the Pennsylvania Railroad Co., which now wholly owns the Anchor line of lake steamers, and is building large new craft to be added to it, says in an interview that "the old American routes shall be protected from disastrous diversion to the Canadian route." In common with the other transportation companies and the other truuk lines, the Anchor line of steamers and the Pennsylvania Co have this season suffered severely by the fierce competition offered by the Canada Atlantic railroad and its line of steamers between Chicago and Depot Harbor, Canada. Four great steamers of this line are carrying full cargoes of rich general merchandise bound to and from the New England states. Just now the Anchor line boats are getting so much eastbound merchandise that their steamers carry hardly any grain at all, while a short time ago they were lugging out a great portion of the grain shipped from Chicago, and sending it to the seaboard via Erie and Fairport.

"WHO INVENTED STEAM NAVIGATION?"

One of the most interesting and scholarly books ever written is that by Thomas Ewbank upon hydraulics and mechanics. The first edition appeared in 1841, and the book has since run through at least fifteen editions. It is largely historical, and treats exhaustively upon various branches of the development of mechanics. In discussing steam navigation it states that in 1543 a naval officer is said to have propelled a ship of two hundred tons by steam in the harbor of Barcelona, Spain. No account of the machinery exists, except that there was a large copper boiler, and that there were paddle-wheels at the sides of the vessel. Like all old inventors, this officer refused to explain his mechanism. The following account of the affair is said by Ewbank to be a copy of the official records contained in the Spanish Royal Archives:

"Blasco de Garay, a captain in the navy, proposed, in 1543, to the Emperor and King Charles the Fifth, a machine to propel large boats and ships, even in calm weather, without oars or sails. In spite of the impediments and opposition which this project met with, the Emperor ordered a trial to be made of it in the port of Barcelona, which trial took place on the 17th of the month of June, of the said year, 1543. Garay would not explain the particulars of his discovery; it was evident, however, during the experiment, that it consisted in a large copper of boiling water, and in moving wheels attached to either side of the ship. The experiment was tried on a ship of 200 tons, called the Trinity, which came from Colibre to discharge a cargo of corn at Barcelona, of which Peter de Scarza was captain. By order of Charles V., Don Henry de Toledo, the governor, Don Pedro de Cordova, the treasurer Ravago, and the vice-chancellor and intendant of Catalonia, witnessed the experiment. In the report to the Emperor and to the Prince, this ingenious invention was generally approved, particularly on account of the promptness and facility with which the ship was made to go about. The treasurer, Ravago, an enemy to the project, said that the vessel could be propelled two leagues in three hours—that the machine was complicated and expensive, and that there would be an exposure to danger in case the boiler should burst. The other commissioners affirmed that the vessel tacked with the same rapidity as a a galley manœuvred in the ordinary way, and went at least a league an hour. As soon as the experiment was made Garay took away the whole machine with which he had furnished the vessel, leaving only the wooden part in the arsenal at Barcelona, and keeping all the rest for himself. In spite of Ravago's opposition, the invention was approved; and if the expedition in which Charles the Fifth was then engaged had not prevented, he would, no doubt, have encouraged it. Nevertheless the Emperor promoted the inventor one grade, made him a present of two hundred thousand maravedis, and ordered the expense to be paid out of the treasury, and granted him besides many other favors.

"This account is derived from the documents and original registers kept in the Royal Archives of Simuncas, among the commercial papers of Catalona, and from those of the military and naval departments for the said year, 1543.

"Simuncas, August 27, 1825.

"THOMAS GONZALES."

Ewbank says, that so long as the authenticity of this document is admitted, it is difficult to perceive how other than Blasco de Garay can be accredited with the invention of steam navigation. It may appear singular that this specimen of mechanical ingenuity should have matured in Spain, but at that time Spain was, probably, the most promising scene for the display of such operations. Everyone knows that half a century before, Columbus could find a patron nowhere else. Objections have been raised to the claim for Garay, and we give them as Ewbank presents them, together with his discussion regarding them. They make interesting reading, and we leave the reader to judge as to their value.

The objections are: 1st. Because the document was not printed in 1543; 2d. It does not sufficiently prove that steam was the motive agent; 3d. If Capt. Garay really did employ a steam engine, it was according to all appearance the reacting eolipile of Hero, and, therefore, nothing new.

"To us there does not appear much force in these reasons. M. Arago observes: 'Manuscript documents cannot have any value with the public, because, generally, it has no means whatever of verifying the date assigned to them.' To a limited extent this may be admitted. Respecting private manuscript it may be true; but, surely, official and national records like those referred to by the Spanish secretary should be excepted. So far from rejecting such sources of information respecting the arts of former times, we should have supposed that they were unexceptionable.

"But it is said, although a boiler is mentioned, that it is not sufficient proof that steam was the impelling agent, since there are various machines in which fire is used under a boiler, without that fluid having anything to do with the operations. Well, but the account states that which really appears conclusive on this point, viz., that this vessel contained 'boiling water,' and that Ravago, the treasurer, opposed the scheme on the ground that there would be an exposure to danger 'in case the boiler should burst.' As this danger could not arise from the liquid contents merely, but from the accumulation of steam (the irresistible force of which was, as has been observed, well known from the employment of the eolipiles), it is obvious enough that this fluid performed an essential part in the operation—in other words, was the source of the motive power.

"Had it not been necessary, Garay would never have furnished in it such a plausible pretext for opposition to his project. It has also been said that if Garay used steam at all, his engine was probably the whirling eolipile. There are, however, strong objections to such an opinion. That such an engine, acting on the same principle of recoil as Hero's eolipile, might have been made to propel a vessel of 200 tons is admitted; but from modern experiments with small engines of this description, we know: First, that in order to produce the reported result, the elasticity of the steam employed must have been equivalent to a pressure of several atmospheres; and second, that the enormous consumption of the fluid when used in one of these engines must have required either a number of boilers or one of extraordinary dimensions. Had Garay employed several boilers, the principal difficulty would be removed, as he might then have made them sufficiently strong to resists the pressure of the confined vapor; however, he used but one, and every person who has witnessed the operation of reacting engines will admit that a single boiler could hardly have been made to furnish the quantity of steam required at the requisite degree of tension.

"As the nature of this Spanish engine is not mentioned, every person is left to form his own opinion of it. We see no difficulty in admitting that he employed the elastic force of steam to push a piston to and fro—or that he formed a vacuum under a piston by condensing the vapor. Such applications of steam were likely to occur to a person deeply engaged in devising modes of employing it, in the sixteenth as well as in the seventeenth century, notwithstanding the objection so often reiterated that the arts were not sufficiently matured for the fabrication of a metallic cylinder and piston, and apparatus for transmitting the movements of a piston to revolving mechanism. The casting and boring of pieces of ordnance show that the construction of a steam cylinder was not beyond the arts of the sixteenth century, nor even of the two preceding ones; while the water works, consisting of forcing pumps worked by wheels, and also numerous other machines put in motion by cranks (and the irregularity of their movements being also regulated by fly-wheels), show that engineers at that time understood the means of converting rotary into rectilinear motions, and rectilinear into rotary ones.

"It need not excite surprise that Garay adopted paddle wheels as propellers, since they were well known before his time, being of very ancient date. Roman galleys were occasionally moved by then, and they had probably never been wholly laid aside in Europe since the fall of the empire."—Steam Engineering.

WE have reason to believe that an important change is impending in the policy of the Admiralty on the boilering of the ships of the Royal Navy. This conversion has been assisted not a little by the record of the "Powerful," which crept home from the Cape at less than half her designed speed, and will now have to be practically eviscerated before she can be re-commissioned for service. If, as we are given to understand, the Admiraity are now convinced that it would be dangerous to rely on this type of boiler in time of war for other than torpedo craft, the naval service will welcome the fact with immense relief. But the change of policy involved will necessarily cause the Lords of the Admiralty to revise the personnel of the consultative engineering branch. Several important changes are, we believe, in contemplation, and with them it may be expected that a reform virtually affecting the efficiency of the fleet will be commenced shortly.—Pall Mall Gazette, London.

NOTES.

H. W. JOHNS MFG. Co's. New Navy brand asbestos fire felt covering has been adopted for the pipe work in the Albany Capitol Building of this State. The covering first put on by another company is to be removed and replaced by this new style material. The contract amounts to over $4,000. This company is making great headway in the way of improvements in the manufacture of their materials and are constantly alive to up-to-date conditions. They were also successful in securing the pipe and boiler covering work for the new addition of the Manhattan Hotel, 42nd Street and Broadway, New York City.

AT the annual meeting of the shareholders of the Bethlehem Steel Co., at Philadelphia, June 21, the announcement was made that the company proposes to bid for the entire contract for 36,000 tons of armor plate for which bids had been requested by the government from all steel companies. A member of the board directors said: "The Bethlehem Co., will bid for the entire contract, and I think I may safely say the rate specified will be lower than that we have ever offered the governmeet before. The reason for this is easily found in the magnitude of the contract to be awarded. Heretofore, the government has seldom made contracts for more than 2,000 tons of steel plate at any one time." The old board of directors was re-elected. President Linderman's report showed $600,000 paid out in dividends, and a surplus of $3,463,726.

ENGINEER ALBERT RICKARDS, U. S. light-tender Manzanita, having witnessed the workings of the Shaw & Spiegle towing machine, wrote the president of the American Ship Windlass Co. a letter from Astoria, Oregon, in which he says: "On the 19th of May, while lying off the Columbia bar waiting for flood tide, the Sampson and her barge came out. The bar was rough, and we could see the Sampson leap out of the water, her whole hull in the air, while the barge was like a half tide rock, the breakers going all over her with a force that is only known to those who battle with rough bars on this coast. Without this automatic towing machine such work could never be accomplished; something must give when a heavy tug falls in such a sea and the barge puts into one at the same time. I think this work demonstrates the worth of such a machine." The tow of the Sampson was a 1,500 ton barge loaded to 17 feet with stone.

THE government of the Province of Ontario has granted a bonus to the Algoma Central Railway of 7,400 acres of land to the mile of road. This road had previously received a money bonus from the Dominion Government of $3,200 per mile. It is to run from Sault St. Marie to Dalton, on the Canadian Pacific Railway, with a branch to Michipicoten, in all about 200 miles, through a mineral and timber district. The land will probably become very valuable. One of the considerations of the bonus provides that the company must bring one thousand settlers into the district each year for ten years. The railway is owned by the Lake Superior Power Co., composed entirely of citizens of the United States. This company has one of the largest mechanical pulp mills on the continent located at the "Soo", and is building a sulphide pulp mill, smelting and reduction works, alkali and chemical works, and large ore docks at Michipicoten Harbor. It is also getting a line of vessels to carry the ore and the products of its mills.

IT IS estimated that American lumbermen have from $25,000,000 to $30,000,000 invested in pine lands in the province of Ontario, Canada. Under present circumstances this is not deemed a particularly happy investment. It was well enough when the Americans could float their logs across the lakes and saw them in their own mills, but when the Ontario legislature passed a law that logs cut in Ontario should be manufactured there, the matter assumed a different phase. From a Canadian standpoint the law is justifiable. It prevents the denudation of the forests. When the timber is cut and manufactured on the ground, as it must be under the present law, it will employ tens of thousands of laborers and build up thriving towns on the Canadian side of the line. The High Joint Commission labored with the matter last year, and if the Alaskan boundary question had not upset the deliberations of that body, a compromise of $1.25 on Canadian lumber might have been reached, with a repeal of the objectionable Ontario law. There is only a handful of American lumbermen concerned in the matter at best, and they have all the rights and privileges in respect to the cutting of Canadian pine that the Canadians themselves have. To imperil other trade relations with Canada in order to compel Ontario to discriminate against her own citizens in favor of citizens of the United States, is to exalt individual hoggishness at the expense of national interests.

CHICAGO AND LIVERPOOL.

One of the most interesting consular reports issued for some time is that in which Mr. T. Erskine, the British Vice Consul at Chicago, deals with the shipping and shipbuilding on the American lakes. The really enormous trade carried on in the inland waters of North America is increasing year by year in spite of tariff restrictions, and with a fleet which already numbers 3,435 vessels, of a tonnage aggregating about six millions, the traffic between the various lakeside towns of the United States and Canada, is at once seen to be both large and important. The report, however, deals in very great detail with the probable effect of the opening of the improved Welland canal on the trade of the lakes, and it is to the facts and figures brought forward in connection with this new waterway that we wish here to direct special attention. By rail and lake Chicago shipped last year no less than 222 million bushels of grain and 5½ million barrels of flour, and the possibility of a very large proportion of this export going in future direct to Montreal, or even direct to Liverpool, by water, is certainly an exceedingly tempting and interesting prospect. The improved Welland canal makes it possible for vessels drawing fourteen feet of water to reach Chicago from the sea, and the great question to be settled is whether it will prove more economical to run vessels between Chicago and Montreal, and there discharge into large fast steamers, or to bring the comparatively small vessels, carrying about 3,000 tons of grain, from Chicago to Liverpool direct. There is, of course, the competition of the railroads to take into account, and this will undoubtedly have a great deal to do with the solution of the problem stated above. That an immense increase in the grain trade at Montreal will directly result there cannot be the least doubt, for many vessels are at present building to meet the new development. Our Consul reports that owing to the opening of the canal the Canadian ports are now in a position to offer rates competing with the Erie canal to New York. This, he remarks, is shown by the agitation now being carried on, headed by the Governer of New York, for the expenditure of $60,000,000, in enlarging and improving the Erie canal from Buffalo to New York, to enable large barges to run from the lake ports and tranship their freight to ocean vessels. Indeed, Governor Roosevelt asserts that unless this is done New York will run the risk of altogether losing her grain trade, the possibility of which is sufficient to lead to every effort being made to prevent such a dire calamity. It is for British shipowners to carefully consider whether the waterway does not now open up a new economic avenue for trade by making it possible for vessels drawing 14 feet to compete with the large freighter and the railways by bringing merchandise from Great Britain direct to Chicago and other lake ports, and returning laden with grain. The Consul has very thoughtfully gone into the business details of the question, and we cannot here do better than quote the information he has sent home, with a view of placing the probable expenses clearly before shipowners. He remarks: "A vessel could carry enough cargo from the lake ports to Montreal to enable her to pass through the canals and there load down to her sea-going water-line, and in this way vessels of greater draft but of proper length and breadth could be used in the trade; it would be necessary to have a pilot on board from Quebec, whose remuneration would not exceed £1 per day; the question of extra insurance rates on account of the more northerly latitude at which the vessels would cross the Atlantic, and because of their being navigated on an inland sea would also require adjustment, although the lakes are admirably lighted and buoyed; vessel would have to coal at their lake port, the price of steam coal at Chicago is at present about 10s per ton; the Custom House have no charges for entering and clearing, but there is a tonnage tax which runs up to 3d per ton, according to the country from which the vessel arrives but is not allowed to exceed 1s 3d per annum for vessels continually trading; no light dues; the expense of loading and unloading is from 1s to 1s 6d per hour except lumber, when the loading charge is about 2s per hour; grain in bulk is loaded at so much the 1,000 bushels, which varies according to the ease with which the individual vessel can be loaded; towing in the rivers can be placed at about £10; the docks belong to individual companies; there are at the present time no crimps or sailor boarding-houses, but if the foreign trade should grow these trades would soon spring up." If it is possible to work a profitable trade, the shipowners and shipbuilders of this country do not require very much instruction in regard to the running and building of the very best vessels that can be made, but it is nevertheless interesting to notice the plans adopted by men on the spot, whose opinion is, at all events, worth having. Thus Mr. Erskine draws attention to the fact that there are at present building in American yards four steel steamers of a size to pass through the Welland canal to the ocean, and there are said to be 18 vessels of a similar size now under contract in the different United States shipbuilding yards. These new boats are to be built like ocean steamers, with the engines amidships instead of aft, according to the usual lake custom. It is observed that the placing of the engines aft gives a large unobstructed hold for quick loading and unloading on the lakes, since profitable running depends on the largest possible number of trips being made in the short season. The newly-designed vessels, with the engines placed amidships to give them more steadiness in the ocean, and drawing 18 feet when fully loaded, paying all summer in the profitable lake trade on this 18 feet, will be able to take on a load of 90,000 bushels of grain, giving a draft of 14 feet, pass through the canals, and enter the Montreal-Liverpool trade during the winter. This is an indication that the Yankees have taken the improved Welland canal seriously, and that they think that there is money to be made out of it. Is there any chance of British shipowners following this example?—Liverpool Journal of Commerce.

VISIBLE SUPPLY OF GRAIN.

As compiled for THE MARINE RECORD, by George F. Stone, Secretary Chicago Board of Trade.

CITIES WHERE STORED.	WHEAT. Bushels.	CORN. Bushels.	OATS. Bushels.	RYE. Bushels.	BARLEY Bushels.
Buffalo	1,432,000	1,741,000	543,000	24,000	336,000
Chicago	11,006,000	4,100,000	1,832,000	280,000	.....
Detroit	189,000	54,000	3,000	6,000	.....
Duluth	11,524,000	346,000	370,000	23,000	43,000
Fort William, Ont.	1,530,000	.....	.....	.....	.....
Milwaukee	1,038,000	302,000	594,000	.....	10,000
Port Arthur, Ont.	98,000	.....	.....	.....	.....
Toledo	217,000	302,000	162,000	2,000	.....
Toronto	41,000	.....	11,000	.....	37,000
On Canals	42,000	499,000	323,000	26,000	46,000
On Lakes	716,000	1,738,000	487,000	.....	.....
On Miss. River	.....	.....	.....	.....	.....
Grand Total	46,877,000	13,188,000	7,146,000	596,000	668,000
Corresponding Date, 1899	34,009,000	12 963,000	5,652,000	727,000	977,000
Increase	435,000	2,169,000	270,000	.....	98,000
Decrease	.....	.....	.....	49,000	.....

While the stock of grain at lake ports only is here given, the total shows the figures for the entire country except the Pacific Slope.

VESSELS OF THE REVENUE CUTTER SERVICE.

Algonquin, Capt. O. S. Wiley; at Wilmington, N. C.
Bear, Capt. F. Tuttle; en route to Bering Sea.
Boutwell, Capt. J. W. Howison; at Baltimore, Md.; repairing.
Calumet, 1st Lieut; J. B. Butt; at New York, N. Y.; harbor duty.
Chandler, 1st Lieut. F. G. Wadsworth; at Boston, Mass.; harbor duty.
Chase, Capt. D. A. Hall; practice ship; Baltimore, Md.
Colfax, Lieut. J. C. Moore; Baltimore, Md.
Dallas, Capt. H. D. Smith; at New London, Conn.
Dexter, Capt. W. H. Hand; at New Bedford, Mass.
Fessenden, Lieut. B. L. Reed; at Detroit, Mich.
Forward, Capt. J. C. Mitchell; at Charleston, S. C.
Galveston, Lieut. C. T. Brian; at Galveston, Tex.
Golden Gate, Lieut. A. Buhner; at San Francisco, Cal.; harbor duty.
Grant, Capt. D. F. Tozier; at Port Townsend, Wash.
Gresham, Capt. T. D. Walker; at New York, N. Y.
Guthrie, Lieut. J. F. Wilde; at Baltimore, Md.; harbor duty.
Hamilton, Capt. W. D. Roath; at Savannah, Ga.
Hudson, 1st Lieut. C. C. Fengar; at New York, N. Y.; harbor duty.
Manhattan, Lieut. W. A. Failing; at New York, N. Y.; anchorage duty.
Manning, Capt. W. H. Roberts; at Cape Nome, Alaska.
McCullough, Capt. M. A. Healy; en route to St. Michaels, Alaska.
McLane, Capt. G. E. McConnell; at Port Tampa, Fla.
Morrill, Capt. A. B. Davis; at Milwaukee, Wis.
Nunivak, 1st Lieut. J. C. Cantwell; St. Michaels, Alaska.
Onondaga, Capt. O. C. Hamlet; at Philadelphia, Pa.
Perry, Capt. W. F. Kilgore; on cruise to Bering Sea.
Rush, 1st Lieut. W. H. Cushing; on cruise to Bering Sea.
Seminole, Lieut. J. H. Quinan; Baltimore, Md.
Seward, 1st Lieut. A. P. R. Hanks; at Mobile, Ala.; harbor duty.
Smith, Lieut. E. C. Chaylor; at New Orleans, La.; harbor duty.
Thetis; at San Francisco, Cal.; overhauling.
Washington, 1st Lieut. W. S. Howland; at Philadelphia, Pa.; harbor duty.
Windom, Capt. G. H. Gooding; at Baltimore, Md.
Winona, Capt. J. B. Moore; at Mobile, Ala.
Woodbury, Capt. J. Dennett; at Portland, Me.

SHIPPING AND MARINE JUDICIAL DECISIONS.

(COLLABORATED SPECIALLY FOR THE MARINE RECORD).

Steamer Overlapping Dock.—Where, by the prevailing custom, and as a matter of necessity, a steamer moored overlaps her own dock, she cannot be charged with fault on that account contributing to a collision. The Wm. M. Hoag, 101 Fed. Rep. (U. S.) 846.

Right to Disregard Rules.—While a steamship may disregard the statutory rules for prevention of collision, where she cannot obey them without placing herself in serious peril she is bound to resort to all other practicable means before she is justified in doing so. Squires vs. Parker et al. 101 Fed. Rep. (U. S.) 843.

Damages Recoverable—Demurrage.—Demurrage is not recoverable in a suit for collision where the vessel, when injured, was at her dock, undergoing repairs, and her place had been taken by another, belonging to the same owners, and it does not appear that their business was in fact interrupted. The Wm. M. Hoag, 101 Fed. Rep. (U. S.) 846.

Steam and Sail Vessel —A steamer has no right to call upon a sail vessel to change her course, where she can, by herself taking the proper course, avoid collision, and the failure of the sail vessel to obey such signal cannot be imputed to her as a fault, especially where it does not appear that it would have lessened the danger of collision. S. Squires vs. Parker et al. 101 Fed. Rep. (U. S.) 843.

Collision—Moving and Moored Vessel.—A moving vessel must be held liable for damages caused by collision with one moored, unless she overcomes the presumption of fault arising from the fact of such collision; and she cannot be exonorated although it appears that the negligence on her part was slight, and that the collision was more the result of accident than such fault. The Wm. M. Hoag, 101 Fed. Rep. (U. S.) 846.

Loss by Delay in Delivery of Cargo—Measure of Damages.—The measure of damages for delay in delivering a cargo of merchandise, for which the vessel is liable, is the difference between the price the goods actually brought when they arrived, and the price they would have brought at the time they should have been delivered; and this measure of damages is not changed by a stipulation in the bill of lading that the shipowner is not to be liable in any case for more than the invoiced or declared value of the goods, the purpose of which is only to fix the outside limit of liability. The Styria, 101 Fed. Rep. (U. S.) 728.

Collision—Steam and Sail Vessels—Presumption of Fault. —Under navigation rules 20 ond 23 (Rev. St. § 4233) which make it the duty of a steam vessel to keep out of the way of a sail vessel, when they are proceeding in such directions as to involve risk of collision, and the duty of the latter to keep her course, where a collision occurs between a steam and a sail vessel, and it is shown that the latter kept her course, the presumption arises that the steam vessel was in fault, and such presumption must form the basis of the judgment in a suit for the collision, unless it is made clearly to appear that the accident was inevitable. Squires vs. Parker et al., 101 Fed. Rep. (U. S.) 843.

Construction of Charter.—The charter of a yacht required the charterer to pay a stipulated sum as hire during the term of the charter, to return the vessel in good condition at the expiration of the term, to be responsible for any loss or damage to her or her equipment or furniture, and to give security in the sum of $75,000 for the performance of the contract. It also provided that "for the purpose of this charter the value of the yacht shall be considered and taken at the sum of $75,000," and that the liability of the charterer should in no case exceed the sum of $75,000. Held, that the provision fixing the value of the yacht was solely for the purpose of determining the damages in case of her loss or injury, and that on her total loss while in possession of the charterer, the owner was entitled to recover the full sum of $75,000, without deduction on account of the hire paid by the charterer. Moore vs. Sun Printing & Publishing Ass'n, 101 Fed. Rep. (U. S.) 591.

Shipping—Effect of Declaration of War—Right to Discharge Contraband Cargo.—The Austrian steamship Styria loaded at an Italian port as a part of her cargo a quantity of sulphur for delivery at New York. The master issued bills of lading therefor, and on April 24, 1898, cleared; but, before sailing, war was declared between the United States and Spain. Held, that such fact constituted a "restraint of princes," within an exception in his bills of lading, which justified the master in refusing to proceed to a port of one of the belligerant powers with a cargo of sulphur, generally recognized and treated as contraband of war, and that he had the right to land such cargo, with all proper precautions, for safe-keeping, at the expense of the shippers, without waiting for further action of the hostile powers, thus leaving his vessel free to proceed with the remainder of her cargo; but, having learned, before he left the port, through official proclamation made by the Italian government, that the Spanish government had agreed not to treat sulphur as contraband of war until further notice, it became the duty of the master to reload the cargo so discharged, and the vessel was liable to the shippers for the damages sustained by reason of his failure to do so. The Styria, 101 Fed. Rep. (U. S.) 728.

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CLEVELAND, O., JULY 12, 1900.

ICE BREAKING.

There was built last year in the shipyards of Sir W. G. Armstrong, Whitworth & Co., England, an ice-breaking steamer for the Russian government, designed by Vice-Admiral Makaroff, and her business is to be to keep some of the principal ports of the Baltic open during the winter.

Admiral Makaroff first met the ice in the Baltic. It was drift ice, apparently about five feet thick, and judging by the report of Mr. Gulston, of Newcastle, who accompanied Admiral Makaroff on his voyage, there seems not to have been the slightest difficulty in getting the Ermack through this obstruction, as she went comparatively easy at nine knots, the engines working slowly. The worst piece of ice which was encountered was estimated at twenty-five feet thick, and the ship went nearly through this formidable obstruction before she was brought up by it. Accurate measurements were taken as soon as possible and the report reads that the field ice was five feet in thickness, the pack on top was nine feet, and there was ice below the field amounting to eleven feet, so far as could be measured, but there may have been more, as there was no means of measuring further below the bottom of the field. It was evident that a large mass of ice had been washed off a shoal and frozen on the field. The worst field ice that they had much of was apparently four feet thick, with s ow on top of it. The snow seems to be the greatest impediment to the vessel's progress, as the designers of the ship had always been led to expect. Mr. Gulston reports that twelve inches of snow was a serious impediment, and eighteen inches almost blocks her. This is, of course, on the top of thick field ice.

There was apparently no difficulty in starting, although the ship had become fast in the ice. Ice anchors were put out and the vessel was warped backwards, after which she started without difficulty. One of the most satisfactory features was that she steered so well, as Mr. Gulston said, "In any way, at any time, in any ice." This has never been the case with any ice-breakers that have previously been built, and is no doubt due largely to the form of the ship, for there is no flat place on her side, either vertically or horizontally, so that unless absolutely frozen in solid she can be given some movement, and can thus be worked loose by her own propellers and by ice anchors laid out.

Some maneuvering trials were made in ice of about two feet to three feet in thickness when the turning circle was found to be about six hundred feet, and there was apparently very little difference in which direction the ship was turned. The effect of the bow propeller was most marked, and it seems practically to be that if the bow propeller is stopped the ship stops, too.

Drift ice was passed through, and appeared to offer practically no impediment; pieces described as quite two to three acres in extent were pushed aside, the ship moving through quite easily. Pack ice with eighteen inches of snow on top seems to have been the greatest difficulty.

LAKE ERIE FISHERIES.

The Fishing Gazette, published at New York, has the following to say concerning the fisheries of Lake Erie:

The first fishing done on Lake Erie was with hook and line, and, of course, was many years ago, although in the forties, during certain seasons of the year, quite large quantities of fish were taken with hook and line and sold commercially. At this time also flourished the seine fishing, no pound nets being thought of or introduced in Lake Erie until late in the fifties. The seine fishermen were obliged to choose their grounds opposite sand beaches and in comparatively shallow water. The gill netting that was done in Lake Erie at this time, or between 1840 and even up to the seventies, was nearly all what is termed large mesh or whitefish gill netting, and nearly all of the boats that operated this class of net at that time did so with sailboats, the majority of them hailing from what was then Barcelona, N. Y., and the Barcelona whitefish had a wide reputation for being the finest in the market. These sailboat fishermen were accustomed to follow the whitefish from one end of the lake to the other, and often brought their boats from New York State to the islands at the west end of Lake Erie, operating their nets on the reefs and in shallow portions of the lake.

Another important source of supply was the Detroit river seine fisheries. These fisheries flourished until the pound nets became numerous in Lake Erie, or until about 1870. The seine fisheries of Detroit river produced large quantities of whitefish, which whitefish were on their way through Detroit river to Lake St. Clair, which was their spawning grounds. It was customary at that time to build pens or incl sed places surrounded by piling, and having a platform over which the seines were drawn and the whitefish emptied alive into the pens. The whitefish were then kept in these pens for late fall and winter use. This was previous to any effort being made to freeze or store fish artificially. A limited amount of this kind of fishing is still done in Detroit river.

During the sixties and seventies pound nets multiplied very rapidly in Lake Erie, and this style of fishing produced for the market enormous quantities of whitefish, the catch of this variety reaching its height in the early eighties, after which the whitefish declined, and instead came heavy catches of herring in this same kind of net.

The pound net fisheries catch all varieties, usually having the runs of the various kinds at different times, and at one time they produced large quantities of sturgeon. The pound net fishing was very attractive, and the number of fisheries increased to such an extent as to deplete the quantity of better varieties of fish contained in the lake.

About 1880 the small mesh or herring gill net fisheries began to be operated, and they steadily increased in size, coming all the time in strong competition with the pound net fisheries, and ultimately, to a great extent, displaced them in the production of such varieties as ciscoes or herring, perch and pike.

About 1890 the catch of ciscoes or herring began to decline with the pound net fisheries and to increase with the gill net fisheries, until at the present time the greater portion of ciscoes or herring are taken with gill nets, and the investment in tugs, boats, nets and appliances operating and handling the small mesh or herring gill net is far greater than the investment in the pound net fisheries.

While the pound net fisheries were at their zenith enormous catches were taken at certain times of the year and at short intervals, and the question with the fishermen and dealers at that time was the storage and saving of the fish until they could be marketed. This induced the erection of large freezing and cold storage plants. These have been added to, until at the present time the fishermen and packers on Lake Erie have cold storage capacity for something like 6,000 tons of fish.

The gill net fishing operated by tugs has changed conditions, so that while we do not have the enormous and spasmodic catches that were formerly taken by the pound net fisheries the aggregate catch for the year of such varieties as herring or ciscoes, pike and perch is really greater than ever before. The propagation of whitefish carried on by the state and government has very materially increased the supply of these fish in Lake Erie, and for several years the catch of whitefish has been quite improved, although during the period from 1885 to 1895 whitefish were very scarce in this lake, the overfishing having very much depleted the supply.

The introduction of the tug fishing or small mesh herring gill nets has also tended to distribute the business more widely along the shore of the lake, and instead of being concentrated at one or two points, as was the case when the fish were nearly all taken with pound nets, we now have no less than twelve important distributing points on the south shore of Lake Erie alone.

Fishing in Canadian waters, or on the north shore of Lake Erie, is still confined almost entirely to the pound net system, but that is restricted and controlled by the laws of Canada so as to avoid excessive or overfishing, and the grounds are still very valuable.

Gill netting is not practiced to any great extent on the Canadian side of the lake, probably on account of the lack of suitable facilities for handling the fish and the lack of distributing market.

EARLY NAVIGATION ON LAKE SUPERIOR.

Capt. John Parker, Ontonagon, Mich., who is 78 years old claims to be the only surviving lake captain who was master of a vessel on Lake Superior as far back as 1847. He was on the Mississsippi in 1844, running between St. Louis and New Orleans, went on the Great Lakes in '46, portaged around the "Soo" before the government had dug a canal, shot the rapids, was overturned and three men drowned, and in his career has explored every nook and corner of the Great Lakes.

Capt. John Parker left Milwaukee with Capt. Calvin Ripley in the spring of 1846 on the propeller Genesee Chief for Mackinac, then took the steamer Franklin (Capt. Benjamin), for the "Soo," where Capt. Ripley had left the schooner Fur Trader, which he had hauled over the portage in 1845.

"The season of 1846," says Capt. Parker, "we ran between the "Soo" and upper lake ports. In 1847 Capt. Ripley left me in charge to carry stone for the first light-house on Lake Superior on Whitefish Point. The next light-house was built on Manitou island, off Point Keweenaw. The next was at Copper harbor. In 1847 there was no light-house on Lake Superior, as the light-house on Whitefish Point was finished in 1848.

"Martin Beaser and myself bought the Fur Trader in the fall of 1849. She was lost in Eagle Harbor in 1852. In the spring of 1853 I bought the schooner George W. Ford in company with the Minnesota Copper Co., and James Burtenshaw of Ontonagon. I hauled her over the portage at the "Soo" and traded between the "Soo" and upper lake ports. The Ford was lost at Eagle Harbor in 1870.

"In the meantime I sailed the propeller Gen. Taylor in '59 and '60, the Mineral Rock and Burlington in '60 and '61. In the fall (or winter) of 1860 the Burlington landed at La Pointe on Dec. 8, with E. F. Prince and his winter supplies. I went down to Ontonagon and laid up the Burlington on Dec. 9 and took her below to Detroit in the spring of 1861. I then sailed the George W. Ford until she was lost in 1870.

"In 1850 the "Soo" canal was opened. The steamer Illinois was the first boat through on the way up, and the North Star next. The George W. Ford was the first vessel locked through on the way down, with a load of copper from the Minnesota mine.

"I located in Ontonagon in 1848, and built the first frame house there. The lumber was cut by Irving Leihy on Bad river and was taken to La Pointe on battous. From there I took it to Ontonagon on the Fur Trader. Ontonagon has been my home since that time. I landed the first barrel of freight at Carp River (now Marquette) for the Jackson iron mine in 1848 with the Fur Trader.

"In 1846 the Fur Trader landed an exploring party on Minnesota Point, at the mouth of the St. Louis river (now Duluth and West Superior) in charge of Capt. Peck. It was there I met Mr. Bungo, a full-blooded negro, who said he was the first white man settled in Superior.

"The following boats were in commission on Lake Superior in 1846:

"Schooner Whitefish, owned by the Hudson Bay Co., Capt. Lampshire. Traded principally on the north shore for the Hudson Bay Co.

"Steamer Julia Palmer, Capt. Wood.
"Propeller Independence, Capt. Avery.
"Schooner Uncle Tom, Capt. John Stanard (run the rapids at the "Soo" in 1847.
"Schooner Swallow, Capt. Redmond Ryder.
"Schooner Merchant, Capt. Moore, (lost in 1847.)
"Schooner Fur Trader, Capt. Calvin Ripley.
"Schooner Chippewa, Capt. Tom Clark.
"Schooner Napoleon, Capt. Stewart.
"Schooner Siscawit, Capt. Barney.
"Sloop Argyle, Capt. Joy (owner.)
"Schooner Algonquin, Capt. John Kay, Sr.

"There were other boats on Lake Superior before 1846, but I give this list simply to show what vessels were doing business at that date."

CHICAGO TUG ACTION.

The Barry Bros. and Joseph Lamoreaux deny that the Great Lakes Towing Co. paid $177,000 for the Barry Bros.' Independent Tug Line last year when it was absorbed by the trust. A further denial of the tug trust's claim, that the Barrys had made an effort to harm the interests of the combine by issuing circulars, and interviewing vesselmen regarding an opposition at Chicago and South Chicago is also made.

The details are set forth in the answer to the bill filed by the Great Lakes Towing Co. in the United States Circuit Court several weeks ago, asking that an injunction be issued restraining the Barrys from engaging in the towing and wrecking business at Chicago.

In the first paragraph of the answer it is denied that all the defendants named in the tug trust's bill, Miles S. Barry, Peter Barry, John Barry, James Barry, Michael Barry, Thos. Barry and Joseph Lamoreaux, were interested in the stock of the Barry Tug Line. On August 29, 1899, the name of the Independent line was changed to the Barry Bros. Transportation Co., the same corporation as the old tug line under a different name.

According to the defendants, James Barry never engaged in the towing business and never owned stock in the Barry Tug Line. Regarding the $25,000 said to have been paid for the good will of the concern it is stated that Miles Barry represented the good will as of great value but that he did not demand remuneration for the same to the excess of $25,000 over and above the value of the property.

Miles E. Barry conducted all the negotiations in connection with the sale of the Barry line to the trust. A contract was signed Sept. 1, 1899, between the parties concerned regarding the defendants' entering the towing and wrecking business on the Great Lakes after the trust had taken hold. The Barrys now declare the contracts made to be void and contrary to public policy. It is further said that James Barry did not sign this agreement.

In conclusion a denial is entered of any intention to combine with outside parties to organize a tug line for active opposition to the trust at big lake ports. In fact all the important charges listed by the trust are emphatically denied. The charge in connection with addressing memorials to vesselmen is treated in a long paragraph, and outlines in detail a strong denial of all disputed points.

In closing, it is asserted that the court can not issue an injunction owing to the Great Lakes including the waters controlled by Canada. A strong plea is made on this account.

Vesselmen are interested in the outcome of the suit, as it is generally believed that it will about settle the action of the Great Lakes company in regard to Capt. E. C. Maytham of Buffalo. The latter has organized a strong opposition line, having boats at nearly all important lake ports, including Chicago, Duluth, Cleveland, Buffalo and Tonawanda. The growth of the opposition line has cut into the profits of the trust, and action must be taken by the combine at an early date.

LAUNCH OF THE CORNELL.

Four doves, liberated from a cage just as the steamer Cornell started down the ways at the launching at South Chicago Tuesday, fluttered for a moment in the air, and then three of them flew onto the deck of the steamer as she plunged into the water. The fourth flew away. All four carried streamers of yellow ribbon from their legs, and seemed in no wise frightened at the furious whistling from everything afloat and ashore which followed the launching. Just previous to the sending of the big steamer down the ways Miss Etta Gunnell of Buffalo, sister of Supt. Gunnell of the shipyard, stood on the launching stage and held the cage which contained the doves. At the signal, when the ropes were cut which allowed the boat to leave the ways, she opened the cage and gave the birds their liberty. This ceremony took the place of the ancient custom of breaking wine on the ship's bow. It is taken from the Japanese and has been used in launching all of the new boats of Carnegie's Pittsburg Steamship Co., to which the Cornell belongs. In a recent launching when the Bryn Mawr of the same line was floated all four of the doves flew on board the ship and remained there for some time. The Cornell will be ready for service in about three weeks. She is a modern ore carrier with a capacity of about 7,500 gross tons.

FOR $150,000 the Lehigh Coal & Coke Co., of Chicago, takes possession of the docks and property of the Lehigh Coal & Iron Co. at West Superior, Wis.

REPORT OF DEEP WATERWAYS COMMISSION.

The report of the deep waterways commission states that the most favorable route for a thirty-foot watermain from the lakes to the sea is from Lake Erie to Lake Ontario, via LaSalle and Lewiston, and from Lake Ontario to the Hudson river, via Oswego and the Mohawk valley; and that the same route is practically as faverable as any for a twenty-one-foot waterway. The estimated cost of a twenty-one-foot waterway is $206 358,000, and of the thirty-foot waterway $317,284,500. The annual cost of maintenance to operating the twenty-one-foot channel is estimated at $2,343,478. The estimate for a thirty-foot waterway is $2,920,308. The maximum annual tariff capacity of the twenty-one foot channel is estimated at 36,608,000 net tons, and of the thirty-foot channel, 35,380,000 tons. The average speed on the twenty-one-foot channel is 10.67 miles an hour, and 10 miles an hour on the thirty-foot channel. The conclusion drawn by the commission is that the twenty-one foot channel promises greater returns than that on the 30 foot channel. The main advantage of the latter is that it would furnish the lowest cost of transportation to foreign markets, and permit the construction of large sea going vessels on the lakes.

CHICAGO RIVER RULES.

City Engineer Ericson, chairman of the commission appointed several months ago to draft rules for the supervision of navigation in the Chicago river, submitted a report Monday. Following is a summary of the recommendations made by the commision.

The bridges to be closed week days on the main river and south branch as far as Twelfth street between 6 and 8 a. m. and 5 and 7 p. m. On the south branch between Twelfth and Halsted streets and on the north branch between Kinzie and Halsted streets, 6 to 7 a. m. and 5:30 to 6:30 p. m. All other bridges, 6 to 7 a. m. and 6 to 7 p. m. No bridges shall be kept open more than ten minutes at a time between 6 a. m. and midnight.

All boats are prohibited from approaching nearer than 100 feet to a bridge until the signal is given that the bridge is to be swung.

The city harbormaster is required to keep a record of all damage done to bridges by boats.

No vessel will be permitted to lie alongside or lap another in that portion of the river lying between Rush street and Halsted street on the south branch and North avenue on the north branch.

A fine of $10 to $100 is provided for vessels that block the channel, and where vessels are moored in such a position as to impair navigation in the river they will be removed by the harbor master at the expense of the owner.

The minimum speed of vessels in passing through bridge draws is fixed at two miles an hour.

Vessels moving with the current shall be given the right of way.

Vessels exceeding 200 tons shall be limited to a speed of five miles an hour.

All vessels not propelled by steam shall be towed by one or more tugs.

VESSELS CLASSED.

Vessels classed and rated by the American Bureau of Shipping in the "Record of American and Foreign Shipping:" American three masted schooner, Theoline; British steamer barge, Champion; British barkentine, D. C. Mulhall; and Swedish tern, Dristig.

SPEAKING of the talk about a French invasion of England, the Army and Navy Gazette says: "When we see a sober journal like the Army and Navy Journal, of New York, lending its ear to such things, we are tempted to say it is time to pause. The French navy and French mercantile marine are not, at the present time, in any state to enter upon such a perilous venture. To invade this country would be a stupendous task demanding a degree of rashness which we are unwilling to attribute either to the French war office or the ministry of marine. What is essential for ourselves is that the ships which we are building should be rapidly completed, and that there should be no further delays in the execution of the shipbuilding programme. Such danger as there is arises from the inability of governments, especially French governments, to control the impulses of people, and, though we do not believe the French have the smallest chance of invading this country with success, it is just possible that some unfortunate episode might lead to strained relations and induce them to attempt it."

FLOTSAM, JETSAM AND LAGAN.

Work has begun on the breakwater at Fairport. The dredge has been cutting a channel for the foundation and the McCormick and Lamb have brought a load of stone from Buffalo for the foundation.

Another 500,000-ton increase in iron ore shipments on the Great Lakes will be recorded for the month of June, which, added to an increase of 1,000,000 tons during April and May, will make a total gain over 1899 of 1,500,000 tons to July 1.

The American Steel Barge Co. has libeled the tug Baker for $3,500 for damages which the barge 117 inflicted on the center pier of the Pennsylvania railroad bridge. The accident happened Nov. 26, 1899, and the barge was in tow of the Baker when she collided with the bridge. The tug was bonded.

Buffalo has fallen into line with the Ohio docks on steamboat fuel, and is now asking only $2.80 a ton in place of the $3 that was agreed upon at the opening of the season. There is just now more soft coal everywhere than dealers know what to do with, while the hard coal shippers are filled up with orders and can get no coal to fill them.

A rather flourishing business of excursion boats on the Chicago drainage canal was brought to an end by order of the drainage board, keeping out all steamers hereafter. The boats have been running against the temporary structures and doing considerable damage, hence the order. The canal will not be opened again until next year. At least a half-dozen boats were engaged in running up the canal and carrying big crowds.

Complaints are being made by vesselmen of the poor service of the fog signal station at Grosse Point, north of Evanston. They state that many times this season when the fog was so thick that the light at that point could not be seen from the lake, the fog signal remained silent. It is customary for vessel captains trading to Chicago to use the Grosse Point signals to correct their courses. They are also warned of their dangerous proximity to shoal water. The signal is especially useful to the passenger steamers trading to Milwaukee and other points along the west shore, and the captains of these boats are the loudest in voicing their protests.

Three detectives are watching the Canadian "Soo" lock night and day. A repetition of the Welland canal dynamiting affair is thus guarded against, though had the latter attempt succeeded it would have been a hundred times more serious than similar damage at the "Soo." The closing of the Welland means the complete stoppage of the great and marvelously developing traffic between the lakes and the St. Lawrence and ocean. Disablement of the Canadian "Soo" lock still leaves traffic the use of the American canal, for it is not likely that Fenians or other enemies of Canada would, in their efforts to inflict injury to its property, willingly involve the United States.

LETTERS AT DETROIT MARINE POST OFFICE.

July 13, 1900.

To get any of these letters, addressees or their authorized agents will apply at the general delivery window or write to the postmaster at Detroit, calling for "advertised" matter, giving the date of this list and paying one cent.

Advertised matter is previously held one week awaiting delivery. It is held two weeks before it goes to the Dead Letter Office at Washington, D. C.

Brettel, Joseph, J.B. Ketchum
Blackburn, F. D.
Blackburn, John
Barss, Alex
Binney, David
Brown, Hugh
Brown, Charlie
Bell, G. W., St. Paul
Brock, R. S., Jas. B. Eads
Botsford, C. H.
Corners, C. D., S. J. Macey
Cattsell, Walter M.
Casey, J. W.
Coates, Thos. H. B.
Cooper, Wm., John Harper
Casey, J. W.
Cornish, F. W., Canadian
Clendenny, Capt. Wm., Unica
Cook, John G., Stephens
Collins, Edward, Fedora
Dookwith, M., Presque Isle
Frann, August
Findley, Mrs. G. W., Massachusetts
Freese, A.
Glasford, Nelson
Golden, Jas.
Gollogly, James, Presque Isle
Guilbronson, Chas.
Harris, James
Hendrick, Mrs. F.C., Christie
Lowrie, Chas. M., Livingstone
Loughway, Octave, City of Genoa
Larsen, Andrew, Tilden
Lecuyer, Albert
Murray, Hugh, Eureka
Monnett, W. B., Yakima
Miley, Mary
Mitchelson, Dick
Moore, George W.
McCormack, W.F., Merrimac
McNeill, Ed., City of Cleveland
McPhee, Neal B.
McLaughlin, Harry
McGregor, W. T.
McMahon, Miles
Montie, Alex, R. Fulton
Millar, Garfield, Melbourne
Mallon, Michael, Maytham
Mahoney, James
Manien, Barney
Osgood, Wm., Fay
Pearsall, Frank J.
Pritchard, John W., Geo. Stone
Payne, James
Robbins, Mrs.
Renninger, Eugene, Rube Richards
Sharpe, Jos. J., 2, Oliver
Senor, Elmer B., 2, Merrimac
Serorey, Capt. E.W., Hill Steel
Strehle, ———, Ruby
Scott, Thomas
Scott, John F. A.
Shackleton, Harry
Scheer, Paul, Iron Duke
Smith, Mrs. Alice
Smith, Henry
Smith, Dan. E., Bradley
Smith, Wallace E.
Still, Jos., Germanic
Tracy, Miss Josie, Nipissing
Thaar, Fred.
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Tuomey, W. B.
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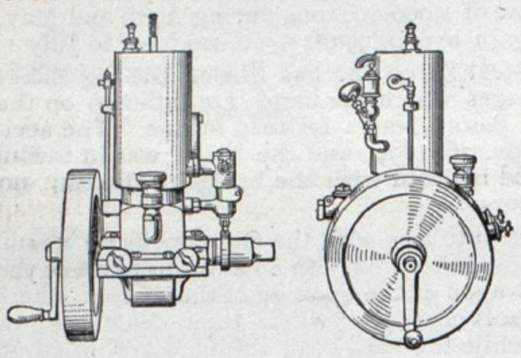

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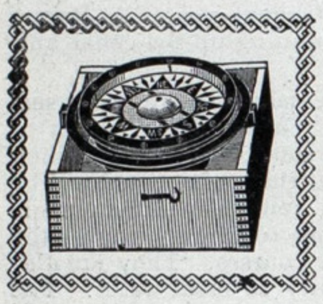

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POPULAR ASTRONOMICAL NOTES.

The earth passed the point in her orbit at the greatest distance from the sun, Aphelion, July 2, and was then in round numbers 94,513,000 miles distant from him. Though so far removed from our central luminary, his rays so strike the earth in our latitude at that time as to produce the maximum effect, to which fact the intense heat recently experienced bears ample testimony. The theory that intense heat is caused by the presence in the sun of large spots, received no confirmation during the past week, as there were no spots on the sun at that time. No one can predict with certainty the duration of a sun spot. Its existence may be limited to a few hours, or prolonged through many months, sometimes continuing for more than a year.

Mercury will be evening star during the month, but owing to the strong twilight, he will not be easily seen, though his eastern elongation from the sun is unusually great, being 26°. He will be most favorably situated for observation the fore part of the month.

Venus will be missed from our evening sky, where she has so long been the acknowledged queen of beauty. She passed inferior conjunction July 8 and from that date will be morning star. She will be but a few days in passing the sun and will soon be as beautiful in the morning sky as she has so long been the gem of the evening. The narrow crescent which she now presents will gradually grow wider as she slowly turns her bright face toward the earth. Her distance from us will increase as she leaves the earth behind and passes swiftly on in her orbit.

Mars is in Taurus and can only be seen in the early morning when "rosy-fingered" dawn is clothing the eastern sky in robes of gorgeous beauty. He is not at all conspicuous and only his intimate friends will be able to recognize him in his present phase. As his orbit lies next outside that of the earth, his apparent motion, caused by the actual motion of the earth, is greater than that of any other planet, and hence he is the most difficult to keep track of. Especially is this the case during his off year, when by reason of his great distance from the earth, he becomes scarcely equal in brightness to a second magnitude star. He is now returning from his heaven-wide wanderings and approaching the earth, and consequently increasing in brightness. At the close of the month he will be more than seven millions of miles nearer than at the beginning. After Nov. 11 he will be classed as evening star, as he will then rise before midnight. Jupiter is at the flood tide of his brilliancy and is by far the most conspicuous planet in the heavens. He is found in Scorpio and apparently in close proximity to Beta Scorpionis. With his retinue of large satellites he is always an object of special interest to the amateur observer. Saturn is still in Sagittarius, and will be in favorable position for observing during the month. His rings may now be seen at their best.

Arcturus in Bootes, Spica in Virgo, and Regulus in Leo, may now be found west of the meridian in the early evening, the only first magnitude stars in that part of the heavens, and will continue to be visible most of the month. Antares in Scorpio, the constellation now especially favored by having Jupiter as its guest, may be found a few degrees southeast of the giant planet. Farther toward the east Altair in Aquila, a first magnitude star midway between two stars of the third magnitude, may easily be recognized. Approaching our zenith from the northeast the beautiful Vega in Lyra cannot fail to attract our attention. Toward the north the well-known circumpolar constellations may always be found. Prominent among these, Ursa Major with the Great Dipper is again descending the northwestern heavens. On the opposite side of the pole Cassiopea sits in her starry chair, which at present is too much inclined for comfort. It is always interesting to watch Ursa Minor as he swings forever around the pole, apparently suspended by his tail. He furnishes quite an accurate timekeeper to one who knows how to interpret correctly his different positions.

No sun spots this morning, the 10th, just the time of the predicted return of the great sun spot accompanied by intense heat. So little do the wisest know of the laws governing the origin and duration of sun spots.

D. SATTERTHWAITE, Toledo, O.

EASTERN FREIGHT REPORT.

Messrs. Funch, Edye & Co., New York, in their weekly freight report, state as follows:

The fixtures for grain, being the evening up of previously effected sales, bear most eloquent witness to the continued demoralization of this branch of our export trade, under the fluctuations in price of which berth freights are equally suffering. The scarcity of open steamers has, however, sustained our general freight market, although the reduced list of charters on our coast would indicate a momentary decline in the demand for tonnage for various purposes as well.

Sail tonnage remains quiet, though firm, in consequence of the continued scarcity of available vessels.

The trouble in China bids fair to absorb quite an amount of tonnage for the carrying of coal and other bulky supplies for the armies, and thus may tend to assist the already strong position of owners.

THE Northern Pacific Railway Co. has specified Bethlehem nickel-steel for the driving-axles and crank-pins for twenty locomotives now under contract with the Schenectady Locomotive Works, and Bethlehem Steel Co. has already booked orders for the forgings in question. The latter concern reports that the list of railroads using this material is steadily growing, but calls attention to the fact that those wishing to specify it for locomotive forgings should be careful to designate it as "Bethlehem Nickel-Steel" as the reputation gained by it has resulted in the production of inferior imitations which do not show the same high qualities.

NOTICE TO MARINERS.

UNITED STATES OF AMERICA—NORTHERN LAKES AND RIVERS—MICHIGAN.

TREASURY DEPARTMENT,
OFFICE OF THE LIGHT-HOUSE BOARD,
WASHINGTON, D. C., July 5, 1900.

ST. MARY'S RIVER GAS BUOYS.

Notice is hereby given that, on or about July 13, 1900, the color of the light shown from the following-named gas buoys in the St. Mary's river will be changed from white to red, to correspond with the color of the buoys, and to indicate on which side they must be passed; the characteristic of each of the lights will thereafter be "Fixed red 10 sec., eclipse 10 sec.":

Dark Hole gas buoy, No. 24.
Vidal Shoals Channel (N. Side) gas buoys, Nos. 90 and 92.
Middle Ground Gas Buoy, No. 98.
Gros Cap Reef gas buoy, No. 106.
By order of the Light-House Board.

FRANCIS J. HIGGINSON,
Rear Admiral, U. S. N., Chairman.

LIGHT-HOUSE ESTABLISHMENT,
OFFICE OF THE LIGHT-HOUSE INSPECTOR, 11TH DISTRICT,
DETROIT, MICH., July 10th, 1900.

The attention of mariners is called to Notice to Mariners No. 40 of 1900, issued by the Light-House Board Washington, D. C., on April 7, 1900, relative to the establishment of gas buoys in Lake St. Clair 20th Dredged Channel.

In this notice it is stated that Buoy No. 1 will be located on the channel side and abreast of the remains of the structure from which lower entrance west side light was shown in 1899.

"Buoy No. 13 on the channel side and abreast the remains of the structure from which Upper Middle West Side light was shown."

"Buoys Nos. 6. and 20 will be abreast and on the channel side of the remains of the structures from which Lower Middle (East side) and Upper (East side) lights were shown.

In addition to these gas buoys, gas buoys Nos. 2, 7, 14 and 19 were established, thus making a double row of buoys, one on each side of channel.

In view of the fact that one or two vessels have recently struck the remains of the crib structures on the edges of this channel, notice is again given that the buoys in question do not mark the exact spot of the remains of the structures but are established abreast of and close inside of the structures and it is not safe for light draft vessel to pass closer than 100 ft. outside of the line of buoys in this channel.

By order of the Light-House Board:

J. C. WILSON,
Commander, U. S. Navy, Inspector 11th Light-House Dist.

THE Elizabeth Herald, published in Elizabeth, Pa., located on the Monongahela river, issued a special edition June 7th, giving an interesting history of the first vessel built west of the Alleghanies, also of the steamboat industry from then up to the present time.

Shipping—Construction of Charter—Lay Days.—A charter party, as modified by further agreements between the parties, construed with reference to the number of lay days allowed for loading and discharging cargo. Elmslie et al. vs. Hagar et al., 101 Fed. Rep. (U. S.) 840.

REMINISCENCE.

It will not be many years until all of the old-time vesselmen will have passed away and much interesting history relating to the lake marine will be beyond recovery. The history of great lake disasters and thrilling incidents as related by the marine men are well worth preserving, and as much history of this kind can yet be obtained, aside from that which already has been printed, the work of getting it should not be neglected.

One of the men who has been on the lakes for a long time is Capt. Hugh Henry, now living in Toledo. He was born in Detroit in 1832, and commenced sailing in 1847 on the steamer DeWitt Clinton, the remains of which are now in the Ohio Central wharf, at the terminus of the old ferry that crossed the river from the foot of Adams street. Capt. Henry said to a Toledo Blade representative: "I am not much of a hand to relate incidents, but I will give you a few. In 1849, Capt Blake, master of the steamer Nile, was taken with cholera while the vessel was on Lake Michigan. He was taken to Milwaukee, but he protested that it was of no use, as he would die, and the Nile would be wrecked near where he became ill. Strange to relate, he did die, and the Nile was wrecked at the place he predicted she would be, the same year.

"I was in the steamer Saratoga as lookout in 1849 with Capt. C. C. Stanard. The boat ran into Sandusky one night in the latter part of July. The Townsend House was near where the Saratoga lay. Cholera broke out in the hotel, and within a few days twenty-nine people had died in the house.

"In 1850 I was on the steamer J. P. Griffith, Capt. Robey. She left Buffalo with about 300 people aboard. I did not reach the boat before she left that day, and it was lucky for me, for when near Chagrin, on Lake Erie, she caught fire, and every soul but about 40 on her perished. Dan Donovan was steward. He was a strong man. Capt. Robey's wife and daughter ran to him for protection. He jumped overboard with them, thinking that he could get them ashore, but they clumg to him so that all were drowned. When the bodies were recovered the women were clinging to the mate. When the terrible calamity became known along the lakes many people came to learn the fate of relatives or friends. a most ghastly sight was to see the drowned people when they were brought to the surface by searchers. Two, three and four people would be lifted to the surface at once, all clinging to each other with a death grip.

"In 1853 there was a big iron ore schooner lying athwartships of the channel at Lake St. Clair. There was no canal there at that time. This schooner stood in a position so as to obstruct vessels from passing conveniently. I was in the brig John Harmon, bound down, and had dropped anchor until the vessel would get out of our way. While we were there the big brig Blackburn, Capt. Donohue, came down. She also dropped anchor. Jo Cadey and his father-in-law were sailors on her. Cadey was coiling a line on the Blackburn's deck when his father-in-law went aloft to stow the main gaff topsail. Cadey called for him to come down, but he kept on. Cadey dropped the line, jumped in the rigging on the opposite side, and before his father-in-law had reached the crosstrees, Cadey passed him. Cadey at once began stowing the topsail, while his father-in-law returned to the deck. Cadey remained so long that the captain sent a sailor up to see what delayed him. The sailor found Cadey astride the cap, clinging to the topmast, dead. He was as black as a negro in the face. Examination as to the cause of Cadey's death developed the fact that he had been struck by lightning. There were no marks on him to prove the cause of death with the exception of a zigzag rent in his boot.

"In 1856 I was with Capt. Darius Cole in the steamer Northerner, a craft that was purchased from Turner Bros., of Cleveland, for $60,000. On her first trip up, April 25, about 4 miles from Gratiot light, Lake Huron, the steamer Forest Queen ran into the Northerner and cut her in two. She went down inside of three minutes. Second Engineer Peter Moore, of Sandusky, and two passengers were drowned. Next day I went up with another man to see if we could find Moore's body. An old man, who was a passenger on the boat, said he wanted to go with us to see if he could find his satchel. We took him, and when we reached near the scene of the disaster an old satchel was floating about. He claimed it, and we were very much amused to see him claim it, as it was worth nothing. But the old man was pleased, and when we returned to our hotel the old gentleman gave us and others a big surprise when he hauled $2,800 from the satchel. He told the bartender to 'set 'em up to the boys all around.' We found Moore's body in his berth. He was lying as if asleep, having been drowned so quickly that he did not disturb the blankets over him.

"In 1871 I sailed the steamer Saginaw, bound from Chicago to Bay City, Mich. We passed through the Straits of Mackinac, April 2, the earliest that any craft had passed for seventeen years previously."

TREASURY DECISIONS.

BARGES.

Barges not 100 tons in admeasurement may be enrolled or licensed, under the circumstances set forth in article 38, Regulations of 1892.

TREASURY DEPARTMENT, BUREAU OF NAVIGATION, WASHINGTON, D. C., July 2, 1900.

SIR: This office is in receipt of your letter dated the 26th ultimo, transmitting a communication from the local inspectors, in which they advise you that it is not necessary to obtain an assignment of official number or signal letters in the case of any barge under 100 tons.

This information is contrary to the regulations, as you will perceive by examining article 38, the provisions of which should be observed in your district.

Respectfully, E. T. CHAMBERLAIN, Commissioner.

Collector of Customs, Great Falls, Mont.

CANADIAN STEAMERS.

Canadian steamers can not legally transport passengers in the United States.

TREASURY DEPARTMENT, JULY 2, 1900.

SIR: This Department is in receipt of your letter dated the 28th ultimo, inquiring whether the Canadian steamer Toronto, making regular trips between ports in the United States and Brocton, Prescott, etc., in Ontario, may transport passengers from the United States to Brocton, continue on the trip to Prescott, return to Brocton, take on the passengers landed there, and convey them to Alexandria Bay.

The Department is of opinion that such a proceeding would cause the penalty provided for by act of February 17, 1898, to attach.

Respectfully,

F. A. VANDERLIP, Acting Secretary.

Collector of Customs, Rochester, N. Y.

VESSELS FROM FOREIGN PORTS.

Vessels from foreign ports arriving in Hawaii must be entered at a port of entry.

TREASURY DEPARTMENT, July 2, 1900.

COLLECTOR OF CUSTOMS, San Francisco, Cal.: Ship Euterpe, mentioned in your report of 27th ultimo, can not legally proceed from Newcastle direct to Lahaina, Hawaii. So advise C. D. Bunker & Co., who should cable master.

H. A. TAYLOR, Assistant Secretary.

SUN'S AMPLITUDES.

The following approximate amplitudes of the Sun's rising will be given each week in this column during the season of navigation. A second bearing may be taken by compass at sunset, by reversing the east bearing given for the nearest latitude, as the change in declination for a few hours makes but a slight difference in the true bearing of the Sun's setting. The bearing may be taken when the Sun's center is on the horizon, rising or setting. The elements which may be obtained by taking these amplitudes are the quantities known as local attraction, variation and deviation, or the total difference between compass and true, or geographical bearings.

LAKE ERIE AND S. END LAKE MICHIGAN, LAT. 42° N.

Sunrise.	Amplitudes.	Bearing P'ts.	Bearing Comp.
July 12.....	E. 32° N.	= N. 5⅛ E.	= N. E. by E. ⅛ E.
July 19.....	E. 30° N.	= N. 5⅜ E.	= N. E. by E. ⅜ E.

LAKE ONTARIO, S. END HURON AND CENTRAL PORTION LAKE MICHIGAN, LAT. 44° N.

Sunrise.	Amplitudes.	Bearing P'ts,	Bearing Comp.
July 12.....	E 32° N.	= N. 5⅛ E.	= N. E. by E. ⅛ E.
July 19.....	E. 31° N.	= N. 5¼ E.	= N. E. by E. ¼ E.

N. END LAKES HURON AND MICHIGAN, LAT. 46° N.

Sunrise.	Amplitudes.	Bearing P'ts.	Bearing Comp.
July 12.....	E. 33° N.	= N. 5 E.	= N. E. by E.
July 19.....	E. 32° N.	= N. 5⅛ E.	= N. E. by E. ⅛ E.

LAKE SUPERIOR, LAT. 48° N.

Sunrise.	Amplitudes.	Bearing P'ts.	Bearing Comp.
July 12.....	E. 35° N.	= N. 4⅞ E.	= N. E. ⅞ E.
July 19.....	E. 34° N.	= N. 5 E.	= N. E. by E.

With a compass correct magnetic, the difference between the observed and true bearing or amplitude will be the variation for the locality. Should there be any deviation on the course the vessel is heading at the time of taking the bearing, the difference between the observed and the true amplitude after the variation is applied will be the amount of deviation on that course. If the correct magnetic bearing is to the right of the compass bearing, the deviation is easterly, if to the left, the deviation is westerly.

Judge Colt, in the United States court at Ogdensburg, N. Y., will soon determine whether boats are liable for bills for supplies furnished on a contract signed by the corporation owning the boats. The case is that of Cuddy-Mullen vs. the steamers of the Ogdensburg Transit Co. The coal company furnished $20,000 worth of coal during 1898 and tried to enforce a lien against the boats. Defendants claim that the coal was furnished on credit given to the company, which is in the hands of a receiver. Corporate ownership responsibilities will be defined by the decision. In individual ownership debts follow the ship itself.

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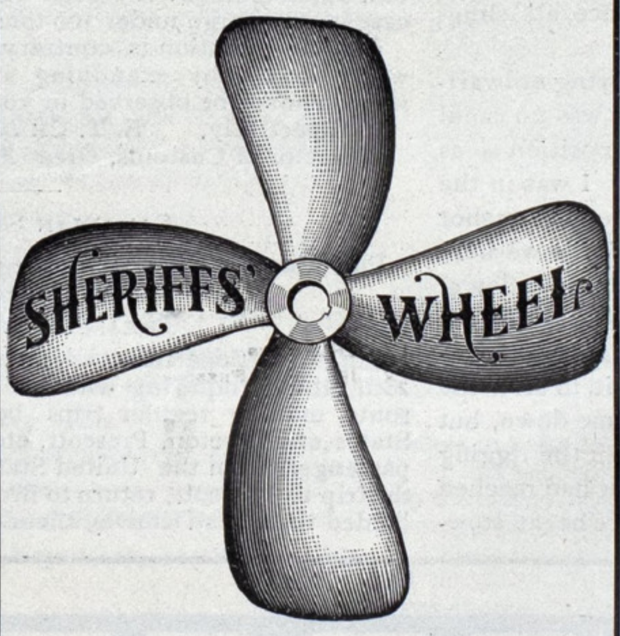

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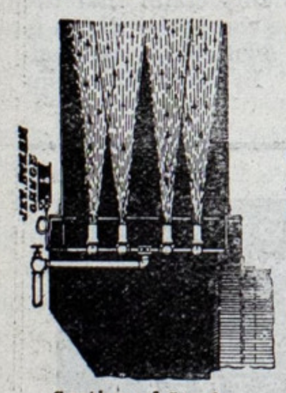

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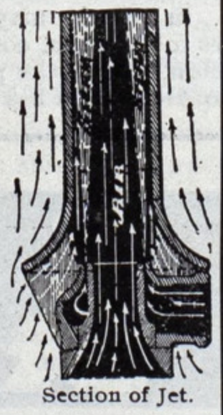

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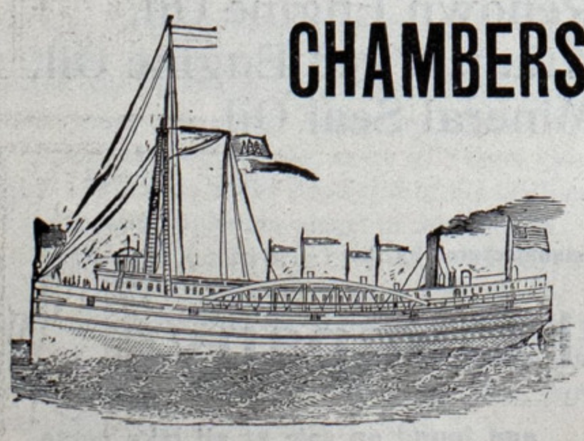

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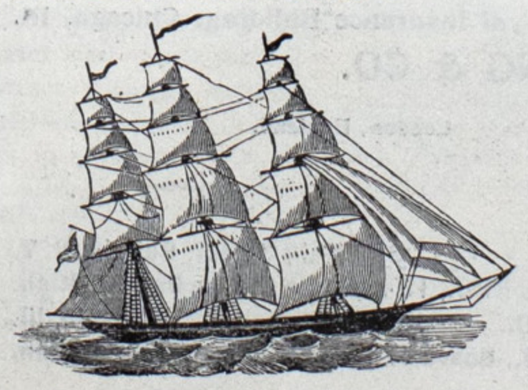

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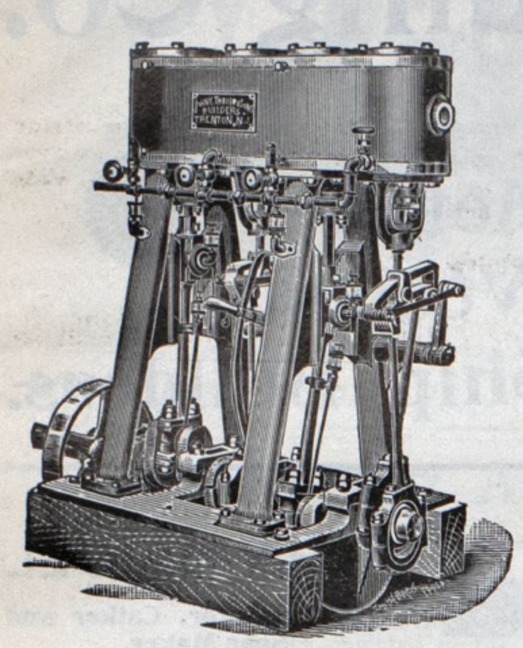

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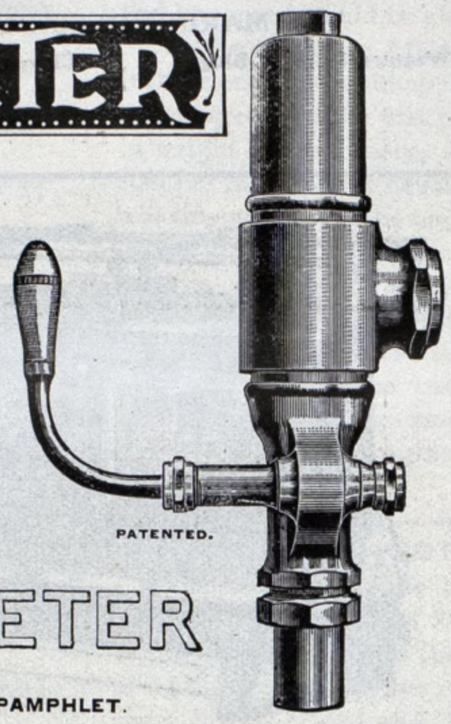

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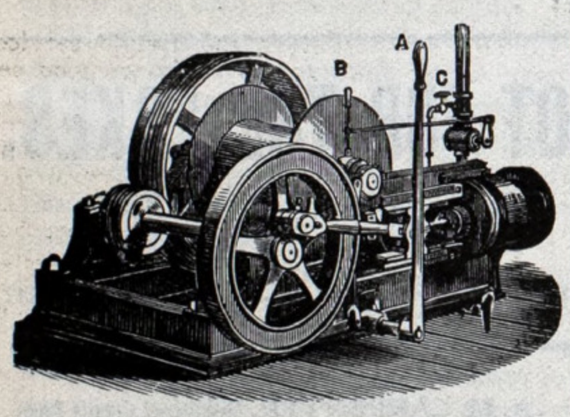

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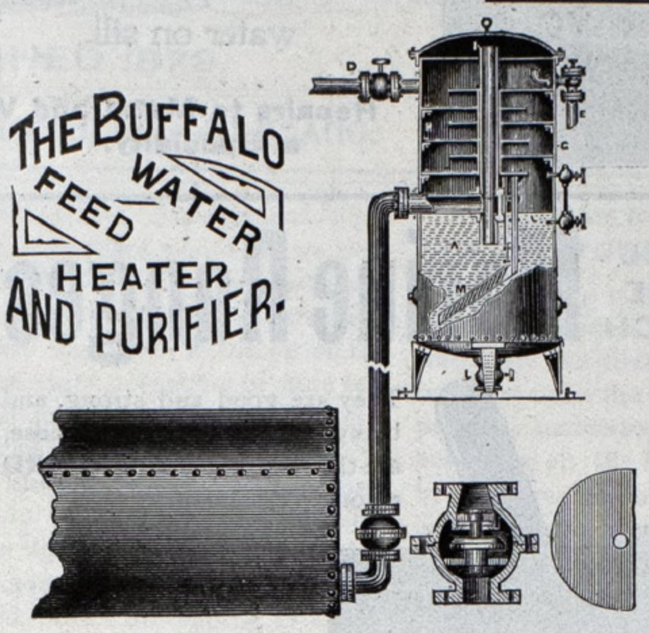

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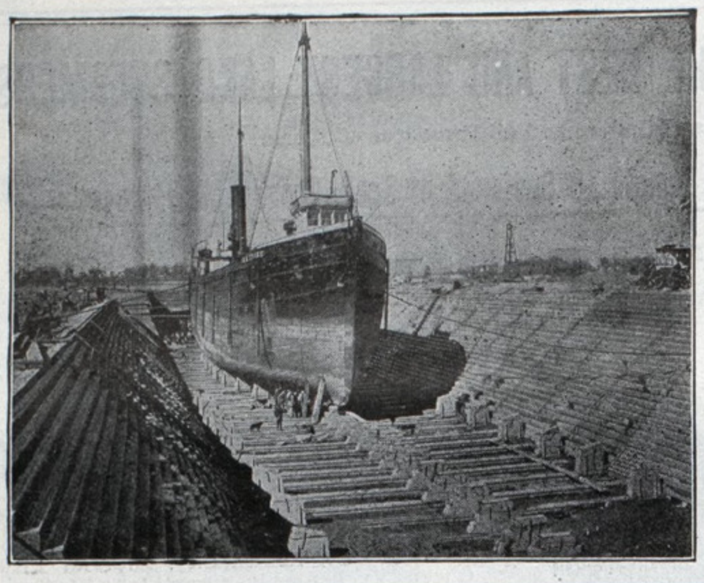

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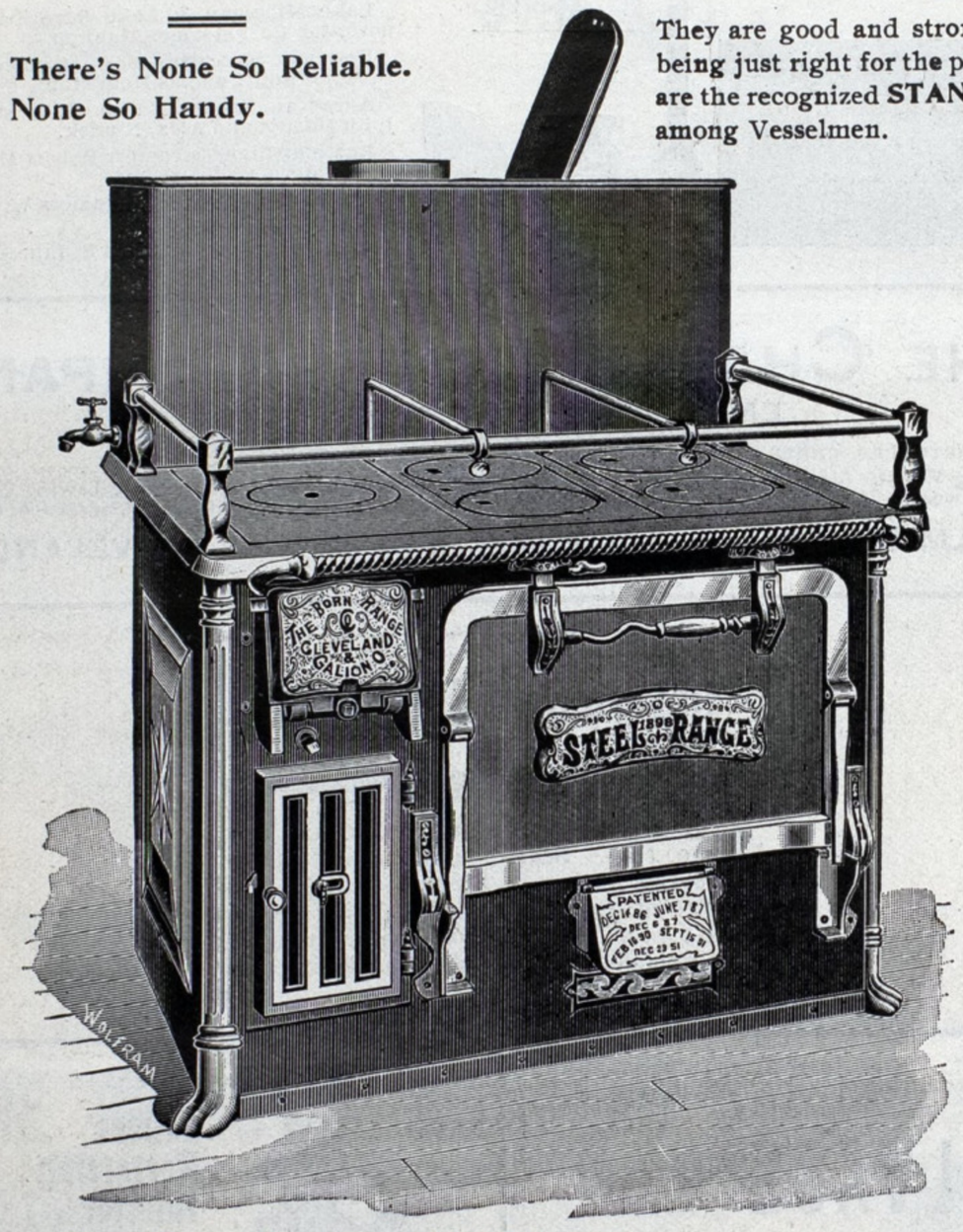

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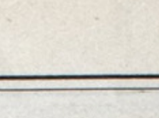

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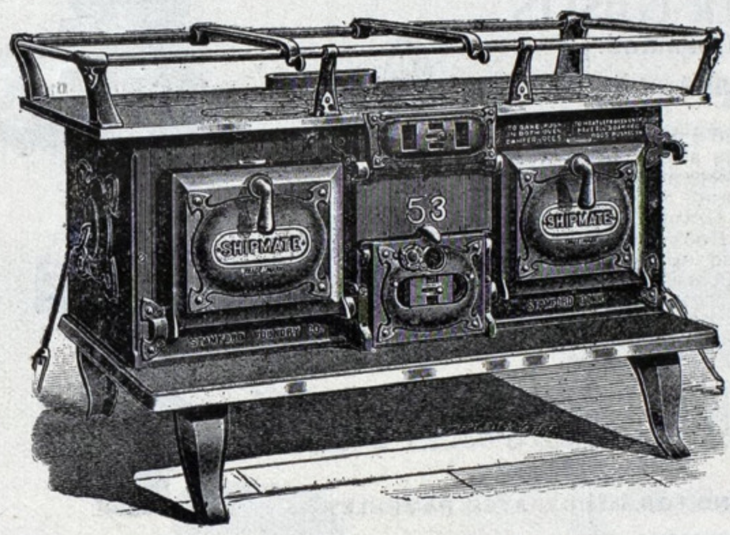

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